



Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

The Chemical Industry's Initiative to Protect the Environment and to Promote Health and Safety

Responsible Care Report 2010



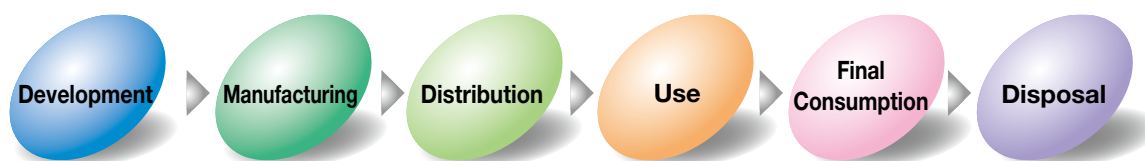
Do You Know about Responsible Care?

What Is Responsible Care?

Chemical substances are indispensable to our daily lives. However, if they are improperly handled, they can be hazardous and can damage human health and the environment.

Concerns about health, safety and the environment are increasing due to the escalation of global environmental problems, the expansion of industrialization and new problems arising from technological developments. It is no longer possible to ensure environmental and human health and safety through legislation, and all parties who deal in or manage chemicals are required to take initiatives to protect health, safety and the environment.

The global chemical industry is working voluntarily to protect health, safety and the environment through every process from the development of chemical substances, their manufacture, distribution, use and final consumption to disposal as well as engaging in dialogue and communication with the public by openly disclosing performance. These initiatives are called "Responsible Care."



Responsible Care was initiated in Canada in 1985, and 1989 marked the establishment of the International Council of Chemical Associations (ICCA). A total of 54 countries and regions around the world now implement Responsible Care (as of October 2010). In 1995, the Japan Responsible Care Council (JRCC) was established within the Japan Chemical Industry Association (JCIA) by 74 corporations, primarily companies engaged in manufacturing and handling chemical substances. With the establishment of the JRCC, the environment, safety and health activities of each company were harmonized and further intensified to promote public understanding of the chemical industry. In May 2010, the JRCC was reorganized into the JCIA's Responsible Care (RC) Committee. As of October 2010, the RC Committee comprises 94 corporate members.

The Responsible Care Logo

The logo, depicting a pair of hands and a model of a molecule, expresses the key message in handling chemical substances with care, and the ICCA has adopted the logo as an international mark to be used by corporations and associations that implement Responsible Care. Permission to use the logo has been granted to chemical industry associations in all ICCA member countries, as well as the respective members of those associations.

In Japan, the Responsible Care logo can be used only by the JCIA and by member companies of its RC Committee (hereinafter, simply referred to as "Members" in this report).



Responsible Care Implementation Items

The RC Committee and Members take collective action in five principal areas:

- Environmental protection (protecting nature and health globally)
- Process safety and disaster prevention (working to prevent disasters at industrial facilities)
- Occupational safety and health (protecting the safety and health of workers)
- Chemicals and product safety (clearly identifying the properties and methods of handling chemical products and protecting health, safety and the environment of all persons who handle these products, including customers)
- Distribution safety (preventing accidents during the transportation of chemicals and protecting human health, safety and the environment)

The RC Committee and Members publicly report the results of these efforts to promote the following:

- Dialogue with society

These efforts are spearheaded primarily by the Steering Committee and four working groups (Report WG, Dialogue WG, Member Relations WG and Product Stewardship WG) established under the RC Committee.

For details, refer to the JRCC website: http://www.nikkakyo.org/organizations/jrcc/top_e.html

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Message from the Chairman



Kenji Fujiyoshi
Chairman of the
Japan Chemical Industry Association

The economy is still in a sluggish state although it is gradually recovering from the global recession caused by the Lehman shock in 2008. In this severe environment, the Japanese chemical industry has been actively implementing Responsible Care (RC) activities and steadily achieving results.

For the management of chemicals, we have launched the Japan Initiative of Product Stewardship (JIPS) to promote in Japan the Global Product Strategy (GPS) implemented by the International Council of Chemical Associations (ICCA). Through the JIPS, we will voluntarily assess, manage and disclose the risks associated with chemical substances.

It is already 10 years since we started the Long-range Research Initiative (LRI) as a voluntary initiative to study the impact chemical substances have on human health and the environment, and we have already achieved some practical results through the LRI. We held an international symposium in Japan this August in commemoration of the 10th anniversary, inviting researchers from across the world.

As our dialogue with society, we have been consistent in holding dialogue meetings with local communities and consumers as well as in publishing various reports. As a result, the public's awareness of RC activities has increased year by year.

On the international front, Japan is now leading other countries in the Asia-Pacific region in RC activities. For example, we hosted the Asia Pacific Responsible Care Conference (APRCC) as chair of the Asia Pacific Responsible Care Organization (APRO) and held seminars in countries such as Indonesia to support the expansion of RC activities in the Asia-Pacific region.

The JCIA had been fostering RC activities in cooperation with the Japan Responsible Care Council (JRCC), but this May the JRCC was integrated with the Association to enhance the management of RC activities in Japan. Through this integration, we will increase the management efficiency of our activities and help chemical companies improve their RC activities.

The chemical industry can play an extremely important role in helping the world achieve sustainable development through the development of new materials and technologies. RC activities provide the chemical industry with the foundation to address a range of issues, and indeed support the very existence of the industry.

It is my great hope that this report will help readers deepen their understanding of the chemical industry's efforts and measures and that we will be able to further develop RC activities and the industry by listening to a range of public opinions. To this end we ask for your continued support.

November 2010

A handwritten signature in black ink that reads "K. Fujiyoshi". The signature is written in a cursive, flowing style.

The JCIA Guiding Principles for Improvement of Environmental, Health and Safety Conditions

1. To improve continuously the environmental, health and safety performance, over the entire life cycle of our products, from research and development through to waste disposal, and to report openly the performance to society
2. To manage our business activities so as to avoid harm to people and the environment as well as to guarantee that there is no threat to the environment, health and safety, during the transportation, storage and disposal of our products
3. To promote the conservation of resources and energy and to minimize waste emission and to recycle waste efficiently
4. To address the concerns of government officials and the public regarding the influence of our products and operations on the environment, health and safety, while disclosing relevant information to and having dialogues with them for proper understanding
5. To ensure risk characterization and risk management based on sound scientific information in order to reinforce product stewardship within the chemical industry and with customers throughout the chain of commerce. To improve transparency, including ways to make relevant product stewardship information available to the public
6. To cooperate with governments and organizations in the development and implementation of effective regulations and standards, and to promote voluntary initiatives for improving the environment, health and safety in addition to meeting them
7. To support actively national and global Responsible Care governance process in order to ensure accountability of implementation of Responsible Care for the environment, health and safety
8. To extend local, national and global dialogue processes to address expectations of stakeholders worldwide for the promotion of the environment, health and safety

Topics for Responsible Care Report 2010

- **Progress of the medium-term plan (fiscal 2009 to 2011)**

The plan has been steadily implemented for each of the priority issues specified in the medium-term plan formulated in fiscal 2008. → P7

- **Energy intensity**

The chemical industry revised its reduction target for average energy intensity during the period from fiscal 2008 to 2012 to "80% of the fiscal 1990 level." Although the intensity increased due to the economic downturn in fiscal 2008, it decreased to 85% in fiscal 2009. → P8

- **A steady decrease in the amount of industrial waste for final disposal**

In fiscal 2009, member companies of the JCIA sent a total of about 231,000 tons of industrial waste to final disposal sites, which represented an 88% reduction from the fiscal 1990 level. The JCIA thus achieved the target for fiscal 2010 earlier than planned. → P10

- **A steady reduction in emissions of chemical substances specified by the PRTR Act**

The JCIA conducts surveys on 480 substances including those unregulated by the law. In fiscal 2009, emissions of substances specified by the PRTR Act (384 substances) decreased by 76% from the level in the baseline year (fiscal 2000). → P12

- **Steady implementation of anti-air and anti-water pollution measures**

Members (of the RC Committee) have been implementing measures to reduce their emissions of air pollutants such as SO_x, NO_x and dust, as well as to reduce COD levels and prevent emissions of water pollutants including total nitrogen and total phosphorus. Through these measures, they steadily reduced both total emissions and the emission intensity of the pollutants consecutively in fiscal 2009. → P14

- **A substantial decrease in occupational accidents**

The frequency rates of occupational accidents had been increasing for Members, but in fiscal 2009 these generally improved. In particular the severity rates at Members' affiliated companies substantially decreased to levels similar to those for the Members themselves. → P18

- **Emergency drills**

Members are conducting emergency drills, not only internally, but also jointly with administrative agencies (e.g. fire and police departments), neighboring companies and other related companies, to prepare for a range of accidents and disasters. → P21

- **Decrease in investment in environmental protection, process safety and disaster prevention**

Although the amount of investment in environmental protection, process safety and disaster prevention all decreased due to the severe business environment, Members have been continuing to invest. → P22

- **Achieving the goal set in the Strategic Approach to International Chemicals Management (SAICM)**

As a member of the ICCA, the JCIA has been conducting a range of activities to minimize the adverse impact that chemicals can have on human health and the environment by 2020. → P24

- **Continuous dialogue with society**

The RC Committee has been actively holding dialogue meetings with society, including with local communities, consumers, students and teachers. → P30

- **Responsible Care commendation program**

To further encourage Members to engage in Responsible Care activities, the RC Committee has been implementing a program to commend individuals and groups that have contributed to Responsible Care activities. → P32

- **Responsible Care verification**

In fiscal 2009, a total of 12 companies undertook Responsible Care verification. → P33

- **Expert opinions**

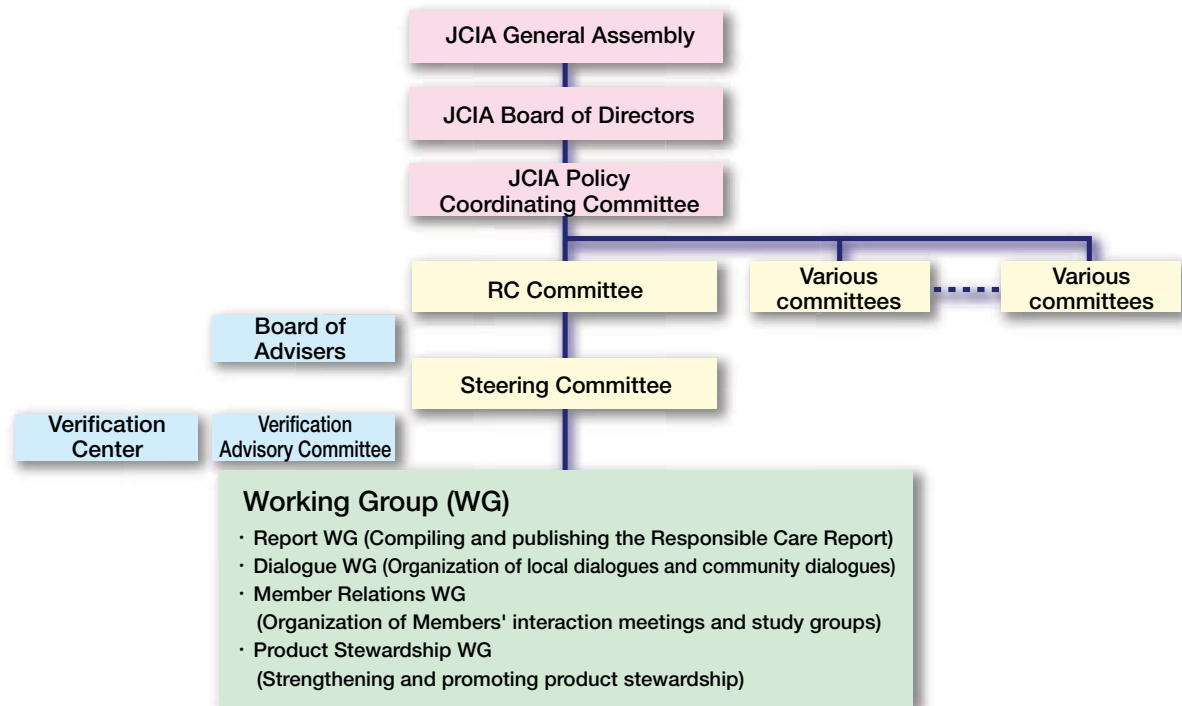
Ms. Ikumi Nakayama, who is an environmental counselor and Dr. Yoshio Okamoto, Honorary Professor at Nagoya University commented on our Responsible Care activities. → P34

Management of the RC Committee

In May 2010, the Japan Responsible Care Council (JRCC), which was established as an independent organization by the JCIA in 1995, was reorganized into the Association's Responsible Care (RC) Committee as the first step toward the full integration of the JRCC with the JCIA in 2012. During the transition period, the name "JRCC" will continue to be used alongside the "RC Committee."

At present Responsible Care activities are promoted mainly by the Steering Committee and the four working groups (WGs) established under the RC Committee, which also establishes ad-hoc task forces as necessary.

Organizational Chart of the RC Committee



Member Activities



When Members engage in the practice of Responsible Care, they abide by the seven Codes of Responsible Care, which provide for the basic implementation items, and work to implement the PDCA cycle themselves.

They prepare their implementation program (Plan), perform their activities (Do), conduct self-assessment by an internal audit (Check), prepare the Implementation Report and Performance Data to be submitted to the RC Committee, and at the same time perform reviews and suggest improvements (Act) for adoption into the next program.

The Internal Audit Assessment Matrix is a checklist based on the respective Codes of Responsible Care, which makes use of a ranking from 1 to 5, with 5 being the highest. The collated results are presented as graphs and are illustrated in this report as "Members' Self-Assessment."

Self Assessment Scores and Categories

Higher than 4.5: Completely satisfactory
 3.5 to 4.5: Nearly satisfactory
 2.5 to 3.5: In the process
 Less than 2.5: Need to adopt

The RC Committee Program of Activities and Progress Status

Based on the policies described in the medium-term plan (for fiscal 2009 to 2011) formulated in fiscal 2008, the RC Committee has been conducting activities focusing on the following key issues.

The RC Committee's Policies

Promote activities in line with the policies of the Responsible Care Leadership Group (RCLG) of the International Council of Chemical Associations (ICCA)

Key Issues from the Medium-Term Plan

- ① Further enhancement and promotion of product stewardship (PS; refer to p. 25)
- ② Promotion of Responsible Care activities in partnership with the RCLG
- ③ Fulfillment of accountability by improving verification activities
- ④ Promotion of continuous improvement and dissemination of Responsible Care activities
- ⑤ Further recognition of Responsible Care activities by society

Fiscal 2009 Program of Activities / Progress Status and Fiscal 2010 Implementation Plan

	Fiscal 2009 Program of Activities	Fiscal 2009 Progress Status	Fiscal 2010 Implementation Plan
Information disclosure	<ul style="list-style-type: none"> • Preparation and publication of the Responsible Care Report 	<ul style="list-style-type: none"> • Prepared the Report • Held report briefings in Tokyo and Osaka • Responsible Care reports published by a total of 74 Members 	<ul style="list-style-type: none"> • Preparation and publication of the Report
Communication	<ul style="list-style-type: none"> • Continuation of dialogue meetings with local communities • Skillful selection of the themes for dialogue meetings with citizens, and the organization of continuing dialogue meetings with teachers • Making the individual dialogue support system widely known to Members and further improving the system • Continuous provision of risk communication training 	<ul style="list-style-type: none"> • Held dialogue meetings with local communities in six areas • Held dialogue meetings with consumers in Tokyo and Osaka • Held dialogue meetings with junior high school science teachers • Supported two companies under the individual dialogue support system • Held a risk communication training seminar 	<ul style="list-style-type: none"> • Continuation of dialogue meetings with local communities • Skillful selection of the themes for dialogue meetings with citizens, and the organization of continuing dialogue meetings with teachers • Making the individual dialogue support system widely known to Members and further improving the system • Continuous provision of risk communication training
Dissemination of Responsible Care Activities	<ul style="list-style-type: none"> • Encouragement of member registration as a group 	<ul style="list-style-type: none"> • Number of companies that registered as a group: 154 (decreased by eight compared with the preceding year) 	<ul style="list-style-type: none"> • Active promotion of member registration as a group
International Activities	<ul style="list-style-type: none"> • Hosting the Asia Pacific Responsible Care Conference (APRCC) in Tokyo in October • Participation in RCLG's annual meeting in Moscow • Support for Asia 	<ul style="list-style-type: none"> • Hosted the APRCC in Tokyo with the participation of 221 people • Participated in RCLG's annual meeting in Moscow • Gave support to Myanmar and Indonesia in RC 	<ul style="list-style-type: none"> • Fulfillment of the role of chair of the Asia Pacific Responsible Care Organization (APRO) • Participation in RCLG's annual meeting in Dubai • Support for Asia
Chemicals and Product Safety	<ul style="list-style-type: none"> • Further enhancement and promotion of PS • Organization of a PS workshop for the ICCA concurrently with the APRCC 	<ul style="list-style-type: none"> • Started creating a Japanese version of the PS guidance • Organized a PS workshop for the ICCA concurrently with the APRCC 	<ul style="list-style-type: none"> • Further enhancement and promotion of PS • Production of a Japanese version of the PS guidance
Support for Members' Responsible Care Activities	<ul style="list-style-type: none"> • Organization of interaction meetings and study meeting for Members • Implementation of the Responsible Care commendation program 	<ul style="list-style-type: none"> • Held interaction meetings for Members in Osaka and Tokyo and also held a total of two study meetings • Awarded a fourth commendation under the program 	<ul style="list-style-type: none"> • Organizing interaction meetings and study meetings for Members • Implementing the Responsible Care commendation program
Responsible Care Verification	<ul style="list-style-type: none"> • Employing more verifiers • Enhancing the training for verifiers 	<ul style="list-style-type: none"> • Conducted verification in 12 companies (Decreased by nine companies compared with the preceding year) • Held a training session for verifiers 	<ul style="list-style-type: none"> • Employing more verifiers • Improving the skills of verifiers

Meeting of the Board of Advisers

The 12th meeting of the Board of Advisers, chaired by Hiroshi Komiyama, was held on December 18, 2009. At the meeting, participants gave their opinions and comments on such issues as measures to decrease emissions of greenhouse gasses, process safety and disaster prevention, expansion of safety activities at worksites, and management of chemicals from an outside viewpoint.

Environmental Protection (Energy Conservation)

In fiscal 2009, the second year of the first commitment period for the Kyoto Protocol (from 2008 to 2012), the Japanese industrial community made further efforts to conserve energy and prevent global warming. Specifically, based on the Nippon Keidanren Voluntary Action Plan on the Environment, the JCIA made more efforts to achieve its revised target for energy intensity. The Association also urged developing countries in Asia, including China, to save energy by preparing a collection of energy conservation and environment-related technologies possessed by Japan's chemical industry and supported the organization of a study meeting on chemicals at the Japan-China Energy Conservation Forum.

As a result in fiscal 2009, although the economy did not recover sufficiently to substantially increase production amounts, JCIA members as a whole achieved a decrease in energy intensity in contrast to fiscal 2008, when members recorded an increase in energy intensity due to the stagnant economy caused by the Lehman shock.

In working towards achieving the goal set based on the Voluntary Action Plan on the Environment, the JCIA will make more improvements by measures that include encouraging member companies to share more information on their activities.

JCIA member companies also made great efforts to reduce greenhouse gas emissions during the fiscal year, which resulted in their lowest ever emission levels despite increased production.

Energy Conservation Targets and Performance

In fiscal 2007, the JCIA set its new voluntary environmental target, which was to reduce the average energy intensity index for the period from fiscal 2008 to 2012 to 80% of the fiscal 1990 level.

In fiscal 2008 (the first year of the period), the energy intensity index increased to 88 influenced by the economic downturn, but in fiscal 2009 the energy intensity index decreased by three points to 85 as a result of energy saving efforts made by member companies, although the production index increased by only three points.

The JCIA will encourage its member companies to share more information on the measures they have found to be effective and continue investing in energy-efficient equipment and developing new technologies to make more improvements that will help to attain the target.

Energy Conservation Measures

After the amount of investment had stayed at around 30 to 40 billion yen for some years, in fiscal 2009 JCIA member companies' total investments in energy conservation dropped to around 28.9 billion yen, down six billion yen from the fiscal 2008 level. The investment made in that fiscal year resulted in an overall energy consumption of 335,000 kiloliters in crude oil equivalent.

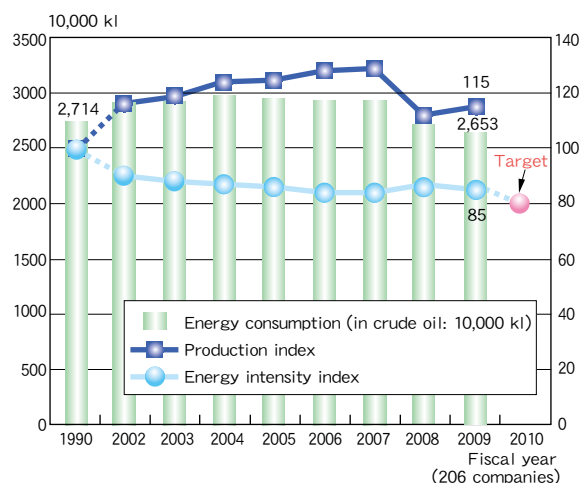
Major reduction measures taken by companies include improvements to the efficiency of equipment/machinery, rationalization of operating methods and recovery of wasted energy.

Reduction in Greenhouse Gas Emissions

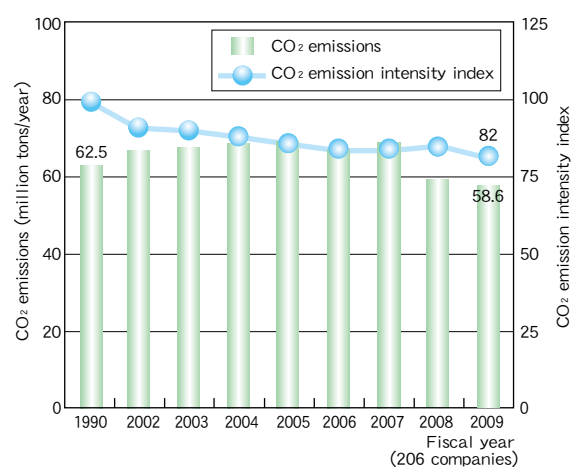
Total CO₂ emissions by JCIA member companies dropped by about 1.3 million tons or 1.5% from the fiscal 2008 level to the lowest ever level, although production amounts increased year on year. This reduction was mainly due to the efforts made by the companies.

In comparison to the baseline year (fiscal 1990), emissions dropped by about 6% while the production index increased by 13%.

Energy Consumption, Energy Intensity and Production Index (JCIA data)



CO₂ Emissions and Emission Intensity Index (JCIA data)



and Global Warming Preventive Measures)

International Measures

On November 8, 2009, the fourth Japan-China Comprehensive Energy Conservation and Environment Forum was held in the Great Hall of the People in Beijing, following the third forum which was held in Japan last year. At this forum, which was attended by a total of 1,000 people from Japan and China, relations between the Japanese and Chinese chemical industries were improved. This was the result of the study meeting on chemistry which was one of the seven study meetings held (e.g. meetings on "Top Runner policies" and the "recycling economy"). At the study meeting on chemistry, Japan gave presentations on energy conservation technologies, management of chemical substances and anti-global warming measures, and opinions were actively exchanged between participants.



Fourth Japan-China Comprehensive Energy Conservation and Environment Forum held in the Great Hall of the People in Beijing (Nov 2009)

Examples of Members' Initiatives

Mass production of carbonyl fluoride (COF₂)

Kanto Denka Kogyo Co., Ltd.

Kanto Denka Kogyo constructed facilities to mass-produce carbonyl fluoride (COF₂), with support from the New Energy and Industrial Technology Development Organization (NEDO) under the Organization's fiscal 2007 program to support corporate anti-global warming projects. Subsequently in April 2008, Kanto Denka Kogyo started supplying COF₂ produced at the facilities.

In the liquid crystal and semiconductor manufacturing processes, gases with high global warming potential (GPW: 6,000 to 9,000) such as PFC gas are used in large amounts, and some quantities of these gases are emitted into the air and contribute to global warming. COF₂ gas was developed as a substitute for PFC gas that has a high GWP. COF₂ gas easily reacts with moisture in the air and breaks down into CO₂ and HF, and as a result it has a GWP of 1, which is the same as CO₂.

In Japan, about 3.5 million tons of PFC gas in CO₂ equivalent is used per year just for cleaning liquid crystal and semiconductors during the manufacturing processes, and replacing the gas with COF₂ gas will result in a substantial decrease in greenhouse gas emissions.



ECO CIRCLE® chemical recycling system for polyester products

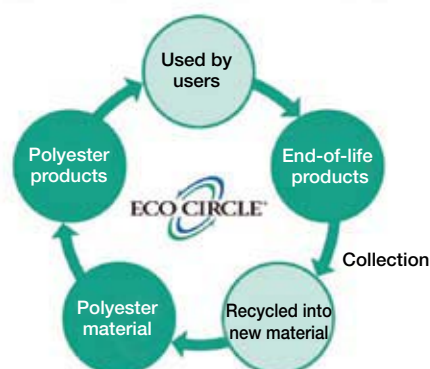
Teijin Ltd.

ECO CIRCLE® is the world's first closed-loop recycling system developed by Teijin based on its chemical recycling technology.

In the middle of the 1990s, Teijin began recycling polyester products to deal with the problem of increasing quantities of polyester waste, such as used PET bottles, and first began selling ECOPET polyester fiber made using recycled PET bottles.

Subsequently the company expanded their target for recycling to include all polyester products and established the technology to chemically recycle the products into high-purity materials. Through chemical recycling, polyester products can be endlessly recycled into new materials without compromising quality, which leads not only to a reduction in the amount of waste generated but also to an about 80% reduction in energy use and CO₂ emissions compared with manufacturing new polyester material (dimethyl terephthalate; DMT) from oil.

For endless resource circulation Recycling of polyester products



Environmental Protection (Industrial Waste)

Reduction Program

According to the Japanese Ministry of the Environment's Annual Report on the Environment, the Sound Material-Cycle Society and the Biodiversity in Japan 2010, the total amount of industrial waste generated in Japan has remained at the same level in recent years, whereas at the end of fiscal 2006, the remaining lifespan of Japan's industrial waste disposal sites was slightly improved to 7.5 years on a national average thanks to a decrease in final disposal waste volumes. However, in building a recycling society it is still important to continue reducing industrial waste.

In compliance with Nippon Keidanren's Voluntary Action Plan on the Environment, the JCIA has accepted a target of an 88% reduction in final disposal waste volumes from the fiscal 1990 level by fiscal 2010. Accordingly, Members (of the RC Committee) were encouraged by the JCIA to establish voluntary targets, including both annual and long-term targets for reducing their industrial waste based on the standards set by the Association. In response, Members have set targets and been pushing forward with their reduction plans.

Status and Performance: Waste Generation Volume, Rate of Effective Use of Resources and Final Disposal Volume

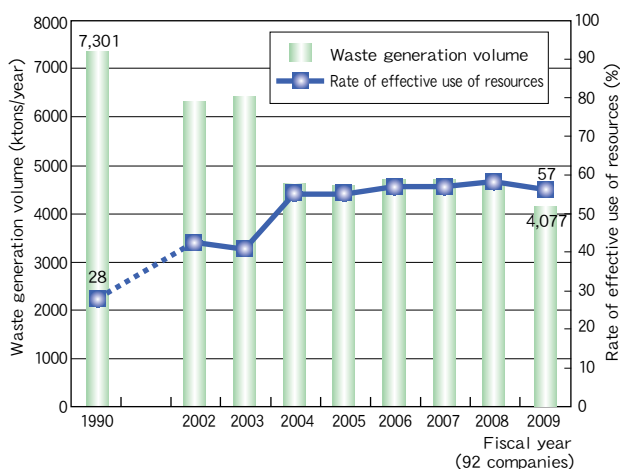
JCIA member companies have taken various initiatives to reduce industrial waste at source. These initiatives include the drastic sorting of waste, the installation and improvement of waste disposal equipment and the recovery and reuse of waste in the manufacturing process. Industrial waste volumes in fiscal 2009 were reduced by 44% from the fiscal 1990 level (by about 10% from the fiscal 2008 level). Further, the companies were active in recycling resources, and as a result, the rate of the effective use of resources (ratio of the volume of resources effectively used to the generated volume), which was 28% in fiscal 1990, improved to 57% in fiscal 2009.

The final disposal volume of waste generated by JCIA member companies in fiscal 2009 was 231,000 tons, 62,000 tons less than in fiscal 2008. This is a reduction of

88% from the fiscal 1990 level, and the companies thus achieved their target earlier than planned. On the other hand, according to the questionnaire survey that targeted Members (of the RC Committee), about 60% of respondents answered "Achieved zero emissions completely" or "Achieved zero emissions partially" in the production sector, 40% in the R&D sector, and 10% in the office sector, respectively. At least 60% of Members have set their own definition of "zero emissions" relative to the final disposal rate and recycling rate.

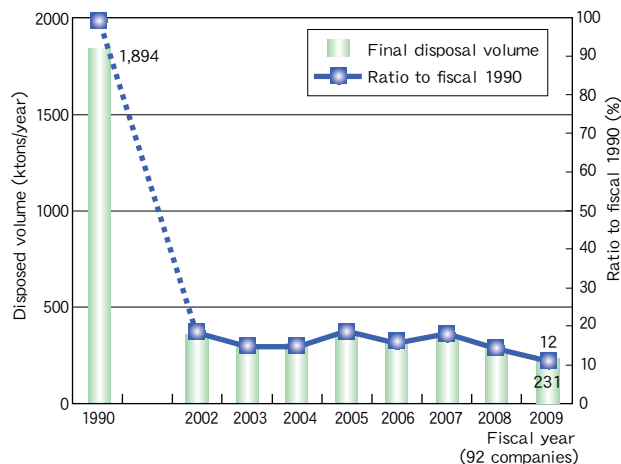
In addition to measures to reduce final disposal volumes, measures have also been put into place to dispose of waste in appropriate ways, including the proper issuing, recovery and verification of industrial waste manifests and visits to actual disposal sites.

Industrial Waste Generation and the Rate of Effective Use of Resources (JCIA data)



Based on the Act on the Promotion of Effective Utilization of Resources, the volume of sludge has been computed after drying since fiscal 2004.

Final Disposal Volume (JCIA data)



Reduction)

Creating a Recycling Society

Other than voluntarily reducing the volume of waste, Members also accept waste from outside, contributing to building a recycling society using its own recycling technologies. Examples of recycling include the use of discarded tires for fuel, the use of sludge as a raw material in cement, the

recovery and reuse of waste aluminum cans and plastics, the recycling of waste metals, the recycling of chlorine and bromine from waste solutions, the recycling of television glass, the chemical recycling of chemical fibers and the recycling and reuse of packaging materials.

Examples of Members' Initiatives

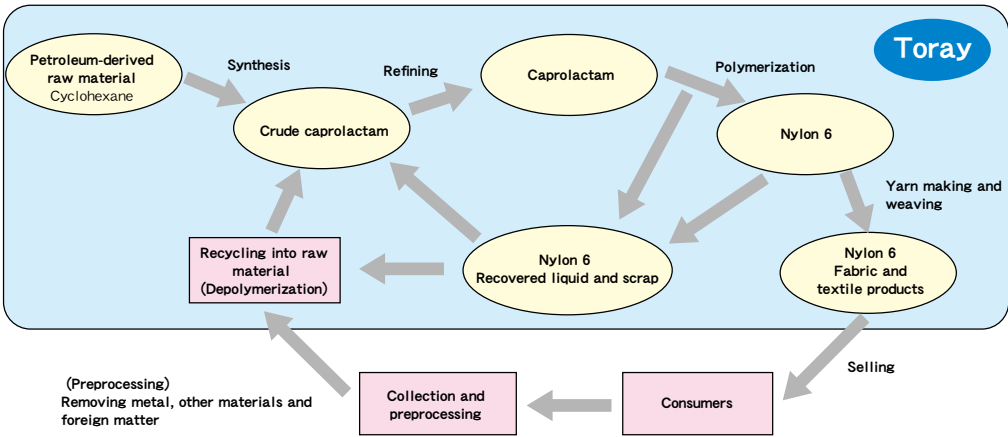
Recycling of nylon 6 textile products (CYCLEAD)

Toray Industries, Inc.

Toray has been recycling nylon 6 textile products under its CYCLEAD recycling system. Specifically, the company collects end-of-life nylon 6 textile products and recycles them into caprolactam at its chemical recycling facilities located inside the Nagoya Plant and then reuses that caprolactam as a material in the manufacturing process of nylon 6. The recovered products are recycled into the material only when they meet the recycling design criteria set by the company. Manufacturing nylon 6 by the use of chemical recycling consumes only about 30% of the energy and emits only

about 30% of the CO₂ compared with the manufacture of nylon 6 using petroleum-derived raw material, and it is expected that chemical recycling will also help reduce waste through energy conservation. Toray launched its recycling activities in 2001 and has sold products made from recycled nylon 6 textile products, including uniforms for government agencies, sportswear and so-called eco bags to replace plastic bags given out by supermarkets. The amount of collected products weights only several tons a year now, and the company aims to increase this amount in the future.

Flow of Toray's chemical recycling of nylon 6 textile products



Reducing the use of virgin plastic as well as the generation of plastic waste

Lion Corp.

Lion has contributed to reducing the use of virgin plastic by at least 100 tons through the following efforts. The company uses "post-consumer material" (namely, plastic used in end-of-life home electric appliances that were collected to comply with the Act on Recycling of Specified Kinds of Home Appliances) recycled into material for the measuring spoons that are packaged in with the company's laundry detergents. At least thirty percent of recycled plastic is mixed with virgin plastic and then molded into measuring spoons. The company is also promoting the use of "pre-consumer material" by making use of the plastic waste generated during the molding of food containers. Lion has reduced the amount of waste plastic generated during the manufacture of spoons by adopting leading-edge molding technology to end their use of the wasteful runner system, which is conventionally used when molding plastic (e.g. between the components of plastic models).



Environmental Protection (Chemicals Emissions)

Introduction of a System of Pollutant Release and Transfer Register (PRTR)

In 1992, the JCIA started a pilot study in Japan. Subsequently, the number of substances subjected to investigation was gradually increased and reached 284 substances in 1998. Since 2000, a total of 480 substances, including 354 substances specified by the Act on Confirmation, Etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) have been investigated.

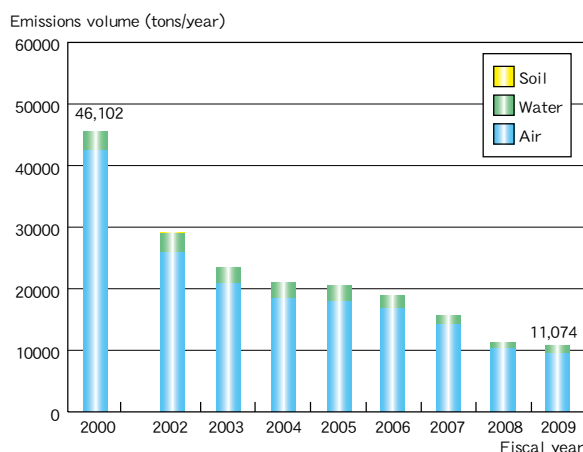
Total emissions of the 354 substances specified in the PRTR Act were 11,074 tons in fiscal 2009, representing a 76% reduction from the fiscal 2000 level. Emissions into the air, water and soil accounted for 89.8%, 10.2% and less than 0.1%, respectively.

Total emissions of the substances subjected to JCIA

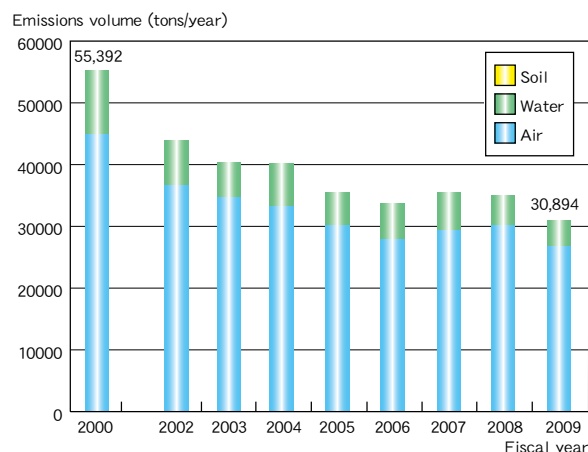
voluntary investigations (126 substances: those specified in the Act were excluded from the 480 substances) were 30,894 tons in fiscal 2009, down 44% from the fiscal 2000 level. Emissions into the air, water and soil accounted for 89.9%, 10.0% and less than 0.1%, respectively. Members have attempted to achieve further reductions in emissions into the environment by actively promoting various programs such as preventing the leakage of hazardous substances, improvements in recovery/recycling and the introduction of alternative substances.

The PRTR Act was partially revised, and the number of substances specified in the Act will be increased from current 354 to 462 in fiscal 2011 (for emissions in fiscal 2010 onwards). In response, the JCIA is now reviewing its own list of substances subject to voluntary investigations.

Emissions of Substances Specified in the PRTR Act (JCIA data)



Emissions of Substances Subjected to Voluntary Investigation (JCIA data)



Data for ten major substances appear on the following website:
<http://www.nikkakyo.org/organizations/jrcc/report/2010/data.html>

Efforts to Reduce Toxic Air Pollutants

The JCIA carried out a voluntary management program for two terms from fiscal 1995 and tried to reduce the emissions of 12 substances designated as priority target substances. In the second program, which started in fiscal 2001, total emissions of the 12 substances were reduced from 12,393 tons in the fiscal 1999 baseline year to 4,918 tons in fiscal 2003, representing a high reduction rate of 60%, although

the mean target reduction rate for the 12 substances was set at 30% in fiscal 2003.

Since fiscal 2004, continuous efforts have been made to reduce the emissions within the framework of PRTR activities. In fiscal 2009, total emissions of the 12 substances came to 2,039 tons, down 83% from the fiscal 1999 level.

12 Priority Target Substances

The Central Environment Council designated 22 substances as priority target substances among hazardous air pollutants. Of these, the following 12 substances were selected according to the following criteria: carcinogenic potential, amount of production/importation and detection in the environment.

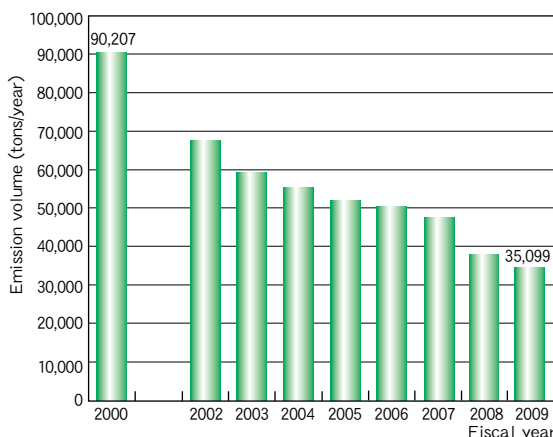
- ① Acrylonitrile,
- ② Acetaldehyde,
- ③ Ethylene oxide,
- ④ Vinyl chloride monomer,
- ⑤ Chloroform,
- ⑥ 1,2-Dichloroethane,
- ⑦ Dichloromethane,
- ⑧ Tetrachloroethylene,
- ⑨ Trichloroethylene,
- ⑩ 1,3-Butadiene,
- ⑪ Benzene,
- ⑫ Formaldehyde

Efforts to Reduce Volatile Organic Compounds (VOCs)

The Air Pollution Control Act, revised and enforced in April 2006, provides for the control of emissions of volatile organic compounds (VOCs). The law specifies that emissions of VOCs into the air should be reduced by approximately 30% from the fiscal 2000 level (baseline year) by fiscal 2010 by means of the best mix of regulatory control and voluntary initiatives by industry. The law aims to prevent the adverse effects of photochemical oxidants.

The JCIA has accumulated member companies' numerical targets and estimates that it can reduce VOC emissions by 51% in fiscal 2010 compared with the fiscal 2000 level. According to the results of investigation, JCIA member companies emitted a total of 35,099 tons in fiscal 2009 and achieved a 61% reduction compared with the level in the baseline year. It is estimated that these figures reflect member companies' efforts that include installing VOC emission control facilities and process improvements, in addition to the impact of a decrease in the production amount.

VOC Emissions (JCIA data)



Volatile Organic Compounds (VOCs)

VOC is the generic term used to refer to organic compounds that are volatile and become gases in the air. Major VOCs are used in paints, printing inks, adhesives and cleaning agents as organic solvents. About 200 substances are classified as VOCs, including toluene, xylene and ethyl acetate.

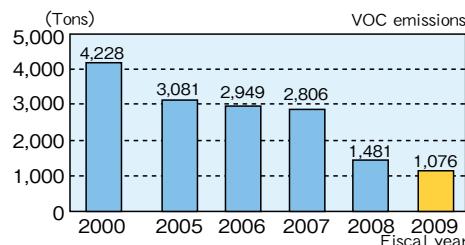
Examples of Members' Initiatives

Measures to reduce atmospheric VOC emissions

JSR Corp.

JSR has long been working to reduce atmospheric emissions of chemicals, and in fiscal 2004, in response to the revision of the Air Pollution Control Act, the company expanded their reduction target to include all VOCs.

Since then the company has been substantially reducing VOC emissions through measures that include changing their polymerization solvent and installing solvent recovery facilities. To further reduce emissions, the company installed five incineration units to treat exhaust gases from the synthetic rubber drying process at three of its factories during the period from fiscal 2006 to 2009. As a result, in fiscal 2009 JSR reduced its VOC emissions by about 75% from the fiscal 2000 level. The company will continue to work to reduce these emissions.

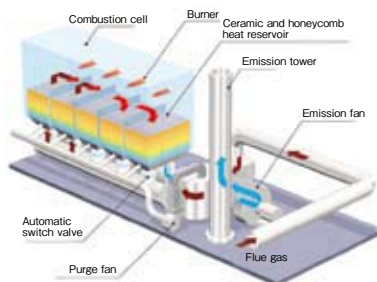
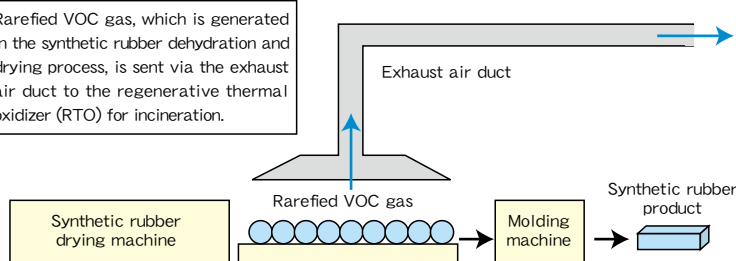


Incineration unit to treat exhaust gases from the synthetic rubber drying process

● Incineration of exhaust gases

Treatment of exhaust gases from the synthetic rubber drying process

Rarefied VOC gas, which is generated in the synthetic rubber dehydration and drying process, is sent via the exhaust air duct to the regenerative thermal oxidizer (RTO) for incineration.



Regenerative thermal oxidizer(RTO)

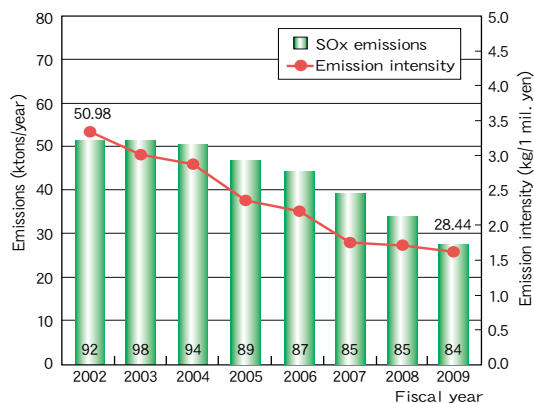
Environmental Protection (Chemicals Emissions)

Efforts to Prevent Air and Water Pollution

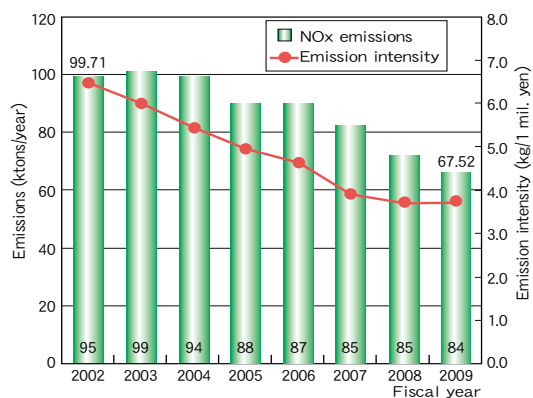
Chemical companies in Japan have reduced emissions of air and water pollutants significantly. In particular, Members have established voluntary management criteria that are more stringent than the regulatory standards. Also, by complying

with agreements with local governments, Members are working to further reduce emissions. As a result, they reduced their emissions again in fiscal 2009, while making steady improvements also with the emission intensity.

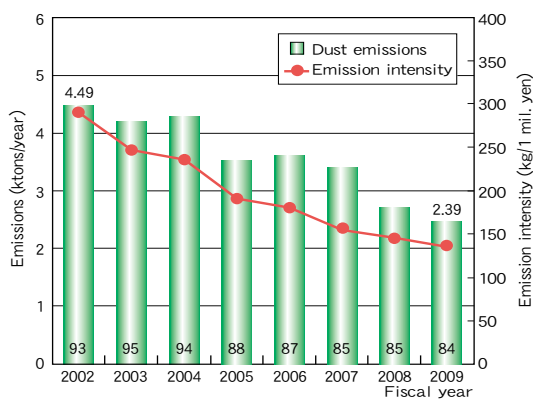
SOx Emissions



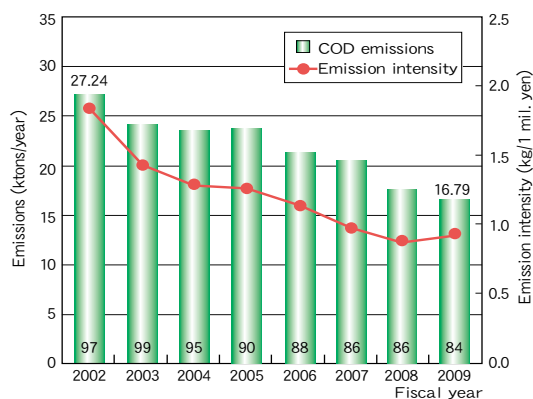
NOx Emissions



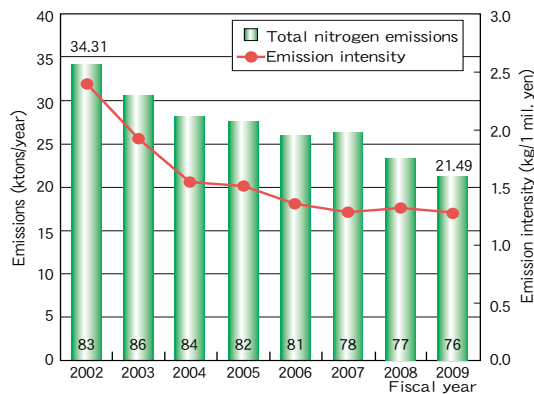
Dust Emissions



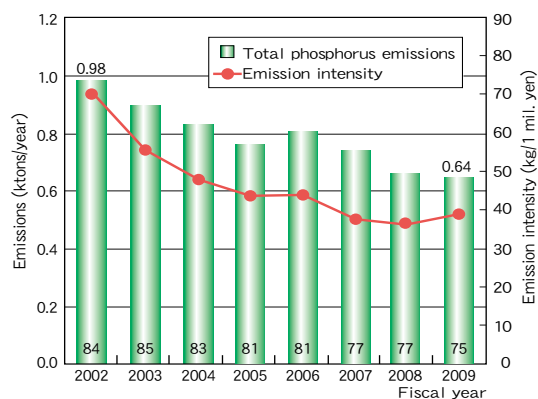
COD Emissions



Total Nitrogen Emissions



Total Phosphorus Emissions



The figures in the bars indicate the numbers of companies that submitted data.

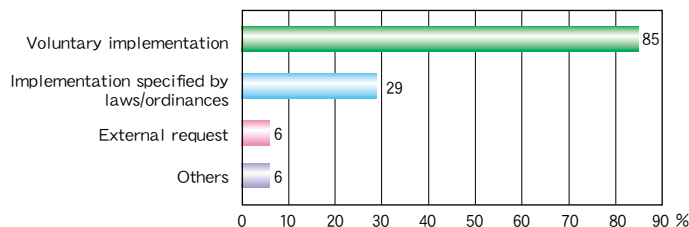
Emission intensity: Since Members' businesses are varied and no single common production unit can be specified, the index is designed to show emissions per sales (in millions of yen).

Initiatives on Soil and Groundwater Contamination

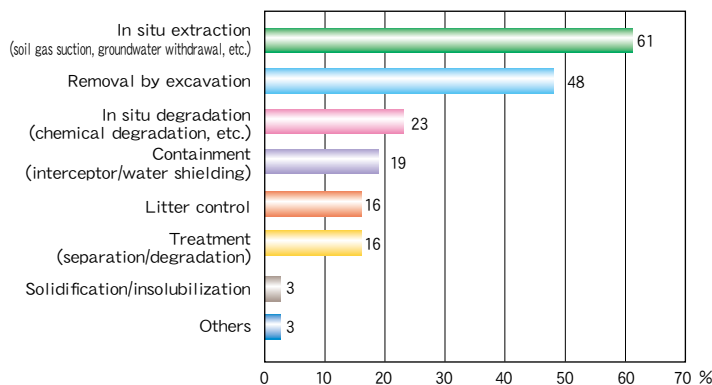
Members are carrying out their own voluntary investigations/countermeasures in addition to the investigations/countermeasures specified in the Soil Contamination Countermeasures Act. Of the 89 companies who responded to the questionnaire survey, 48 investigated contamination of soil/groundwater at 104 sites in fiscal 2009. Nineteen of the 48 companies detected contamination that exceeded environmental standards at 42 sites. The reasons for implementing the investigation were also queried in the survey. Voluntary implementation of the investigation ranked first and accounted for 85%, while implementation according to the law or ordinance accounted for 29%. Substances other than those specified by law were also examined in 15 investigations.

In fiscal 2009, 31 companies implemented countermeasures against contamination at 53 sites, including sites where contamination had been detected before. In addition to removal by excavation, contamination is being addressed by in situ extraction, containment, in situ degradation and various other methods.

Reasons for Implementing an Investigation (multiple answers allowed)



Countermeasures against Contamination (multiple answers allowed)



PCB Initiatives

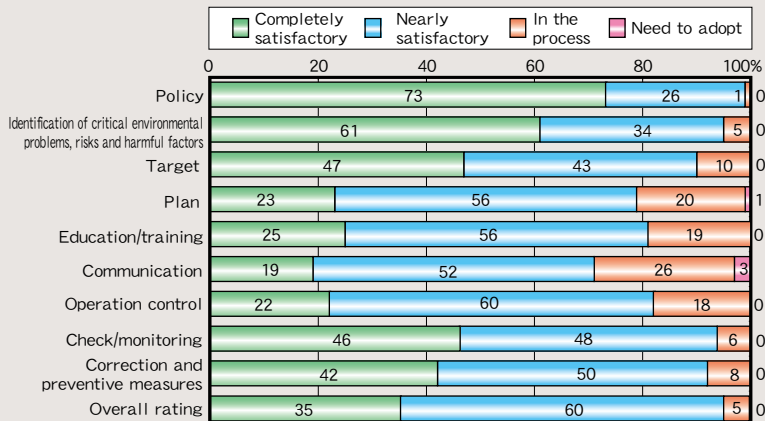
Of the 89 companies that responded to the questionnaire, 79 (89%) retain PCB waste (PCB waste or discarded devices containing PCB). In fiscal 2009, thanks to the scheme for the appropriate treatment of PCB waste established by the Japanese government, the number of Members that partially disposed of PCB waste appropriately increased to 35 companies (44% of the companies retaining PCB waste), but none of the companies have completed their disposal yet.

The Act on Special Measures Concerning the Promotion of the Proper Treatment of PCB Waste mandates companies to notify their current situation with the storage and disposal of PCB waste to the relevant prefectural governor and to dispose of all their PCB waste appropriately within 15 years of the date that the law came into force (July 15, 2001). Accordingly, Members will continue to dispose of their PCB waste in a consistent manner in line with governmental guidelines.

Members' Self-Assessment

Environmental Protection

The percentage of companies that answered "Need to adopt" and "In the process" steadily decreased while the percentage of companies that answered "Completely satisfactory" and "Nearly satisfactory" increased. In particular for "Operation control," the percentage of companies that answered "Need to adopt" and "In the process" substantially decreased from 33% in fiscal 2007 to 18% in fiscal 2009, which implies that progress has been made in Members' activities to develop environment-friendly products and make contributions to their local communities.



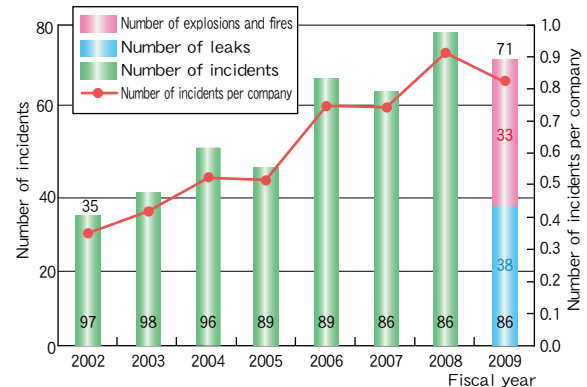
Process Safety and Disaster Prevention

Number of Incidents at Facilities

The breakdown of the number of incidents at facilities (numbers of leaks, explosions or fires) is shown in the graph for fiscal 2009. In the fiscal year, the total number of incidents at Members' facilities decreased by seven year on year, and the number of facility incidents per company, which had been increasing, also decreased. The JClA is endeavoring to reduce the frequency of facility incidents at its member companies by collecting information on incidents that have taken place at their facilities, sharing information about those incidents and preventive measures with Members, and by looking at countermeasures.

Members of the RC Committee continue to regard process safety and disaster prevention as an important management mission and since fiscal 2002, they have been investing more money in process safety and disaster prevention. Despite the severe economic conditions, they invested a total of 55.9 billion yen in fiscal 2009 (refer to p. 22).

Incidents at Facilities (Explosions, fires, leaks, etc.)



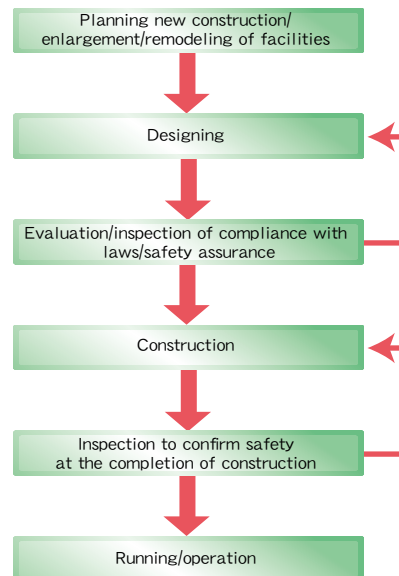
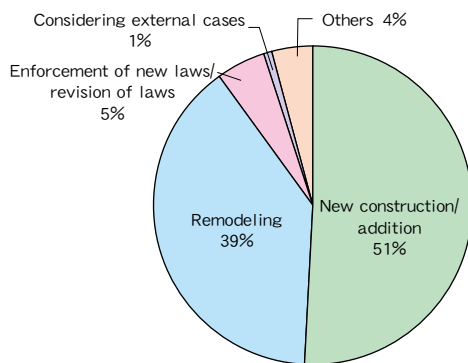
The figures in the bars indicate the numbers of companies that submitted data.

Prior Facility Evaluation and Management

Of Members who responded to the questionnaire, 93% conduct prior evaluations of their facilities. As the reason for this, 90% of respondents answered "for new construction/addition" and "for remodeling." As illustrated in the flowchart, many Members examine the safety of their new facilities at the design phase and also check that the safety that was

built in at the design phase is still there after completion of the construction work. They thus carry out risk assessments at each phase to confirm safety and prevent incidents at facilities.

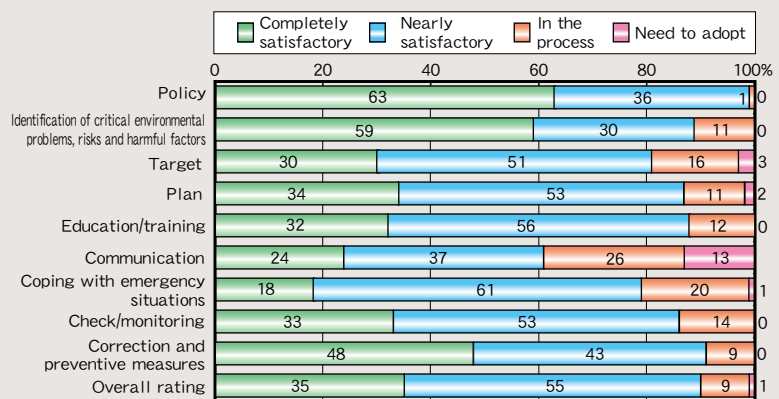
Reasons for Conducting Prior Facility Evaluations



Members' Self-Assessment

Process Safety and Disaster Prevention

For "Communication," the percentage of companies responding "In the process" substantially decreased from 35% in fiscal 2008 to 26%. It can be said that the number of Members who are working to encourage dialogue with local residents, which is a requirement on the checklist, has been increasing.

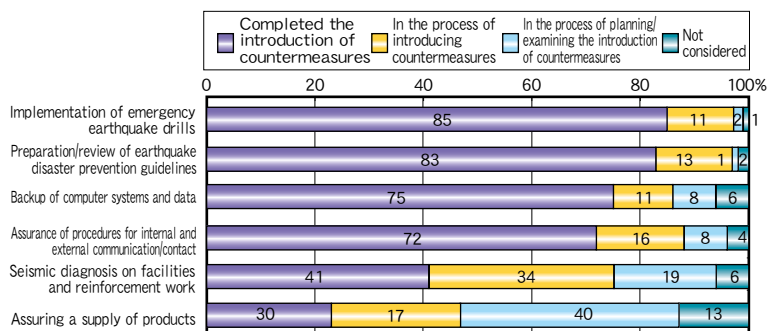


Countermeasures for Major Earthquakes

In recent years, Japan has been experiencing large earthquakes with a seismic intensity of 6-lower or greater every year, including the Niigata Chuetsu-Oki Earthquake in 2007, the Iwate-Miyagi Inland Earthquake in 2008 and the Suruga Bay Earthquake in 2009, and the general public has taken a keen interest in how companies respond to earthquakes. According to Members' responses to the questionnaire, the percentage of companies that had implemented measures for all six items increased year on year in fiscal 2009, and at least 95% of them have completed or are in the process of implementing emergency earthquake drills and preparing/reviewing earthquake disaster prevention guidelines; 85% of them are implementing the backup of computer systems and data and assuring procedures for internal and external communication /contact; and 75% of them are carrying out seismic diagnosis on facilities and reinforcement work. As for assuring a supply of their products, 53% of respondents answered "In the

process of planning/examining" or "Not considered" and more improvement must be made. However, Members have been steadily implementing earthquake countermeasures by reducing the number of facilities that are vulnerable to earthquakes through seismic diagnosis and reinforcement work, conducting drills in preparation for large earthquakes, and introducing earthquake early warning systems.

Responses to Questionnaire on Earthquake Countermeasures in Fiscal 2009



Emergency Measures

Members systematically conduct a range of emergency drills against earthquakes and other disasters.



Disaster prevention drill (Sumitomo Seika Chemicals Co., Ltd.)



Firefighting training (Kureha Unyu Co., Ltd.)



Comprehensive disaster prevention drill (Tokuyama Corp.)



Disaster prevention drill (Nippon Soda Co., Ltd.)

Occupational Safety and Health (Measures to Prevent Occupational Accidents)

Preventing occupational accidents is a major industry-wide commitment. All Members constantly work to improve their safety levels to eliminate occupational accidents.

In fiscal 2009, both the frequency rate and severity rate of occupational accidents were lower at Members and their affiliated companies than the rates recorded by the manufacturing sector and the chemical industry as a whole. Compared with 2008, however, the frequency rate and severity rate decreased for Members while the number of fatalities remained at the same level. In companies affiliated with Members, both the frequency rate and the number of fatalities decreased, and the severity rate, which, since 2005, had been higher than the rates recorded by the manufacturing sector and the chemical industry as a whole, also decreased substantially.

The causes of all occupational accidents were thoroughly investigated jointly by the Members involved and their affiliates, and they have taken measures to prevent any reoccurrence of such accidents. Members will continue to improve their safety levels to achieve zero occupational accidents.

Number of Fatalities from Occupational Accidents

	2002	2003	2004	2005	2006	2007	2008	2009
Member companies	1	2	1	1	2	1	2	2
Affiliated companies	1	3	2	2	5	6	5	1
The chemical industry*	22	25	22	22	25	17	28	19
The manufacturing sector*	275	293	293	256	268	264	260	186

*Source: Ministry of Health, Labour and Welfare (MHLW)

Examples of Members' Initiatives

Turning machine operators into machine experts

Asahi Kasei Chemicals Corp.

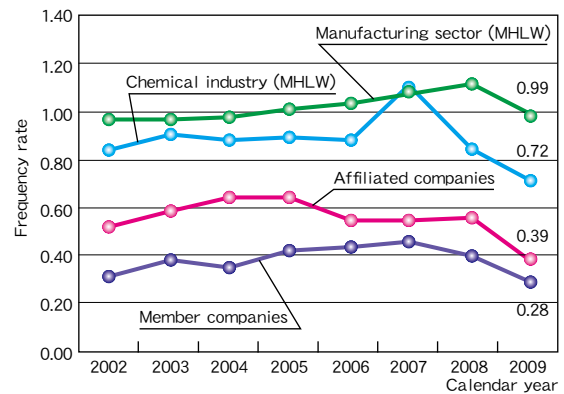
In the petrochemical industry, failure to detect abnormal symptoms in equipment and its operation could lead to serious accidents. Based on this recognition, for more than 30 years, the Asahi Operation Academy (AOA) has been providing machine operators working at petrochemical plants with technical training to ensure the safe and stable operation of plants. The training is divided into a Technical Training Course (TTC) and a Simulation Training Course (STC). In TTCs trainees learn skills that will enable them to detect all abnormal symptoms in facilities and in STCs they acquire the ability to make appropriate responses even to minor changes in operation. The AOA arranges seminars on 50 or more subjects as necessary in response to the various needs of trainees. During the training, professional instructors train machine operators in small groups, using actual equipment and simulators developed by Asahi Kasei Chemicals to help them acquire the ability to act appropriately in emergencies.



Change in the Frequency Rate

$$\text{Frequency rate} = \frac{\text{Number of lost-time injuries}}{\text{Total work hours (per million hours)}}$$

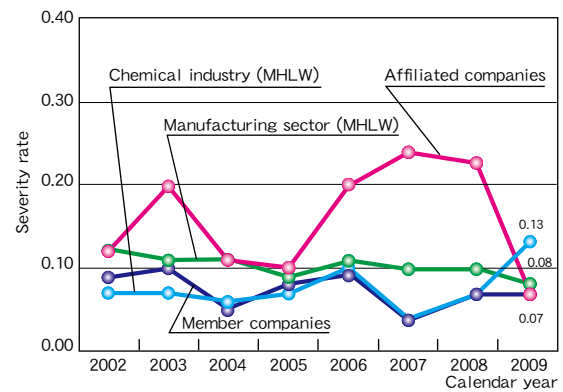
Indicator that shows the frequency of occupational accidents



Change in the Severity Rate

$$\text{Severity rate} = \frac{\text{Lost days}}{\text{Total work hours (per thousand hours)}}$$

Indicator that shows the severity of occupational accidents



Occupational Safety and Health (Safety Awards and Symposiums)

As a means to encourage companies operating in the chemical industry to implement measures for process safety and occupational health, the JCIA gives awards to exemplary companies that have conducted excellent safety activities, and holds an annual safety symposium in which the award winners report on their safety assurance activities.

In fiscal 2009, the JCIA renamed its Safety Award the Best Safety Award and its Safety Effort Award the Safety Excellence Award. The Association also established a Special Award for Excellence in Safety to commend small plants and research institutes of chemical companies that have been achieving zero occupational accidents and disasters continuously over many years.

In fiscal 2009, 14 sites of chemical companies participated in the awards, and at the safety awards meeting, five plants were selected to be the winners in recognition of their excellent safety records. Showa Denko K.K.'s Oita Complex, which won the Best Safety Award, is making efforts to raise safety awareness among employees. Under the slogan "Always keeping the importance of safety in mind," the Oita Complex is encouraging all employees to conduct safety activities while urging managers to make appropriate responses to subordinates' safety proposals so that all necessary proposals will be accepted and implemented. The site is also ensuring safety in its regular repair work.

Best Safety Award :

Oita Complex, Showa Denko K.K.

Special Award for Excellence in Safety :

Research Center (Machida), Denki Kagaku Kogyo K.K.

Safety Excellence Award :

Chemical Company Kashima Plant, Air Water, Inc.

Chiba Plant, JSR Corporation

Okazaki Plant, Toray Industries, Inc.

Subsequently, the directors of plants that won awards reported on their safety management activities at the safety symposium held in Tokyo on June 22, 2010 with the participation of 110 people.

At the panel discussion held as part of the symposium, the directors held discussions on the theme of how to continue achieving zero occupational accidents and reaffirmed their commitment to safety.



Directors of the award winning plants and the chairperson of the safety awards meeting

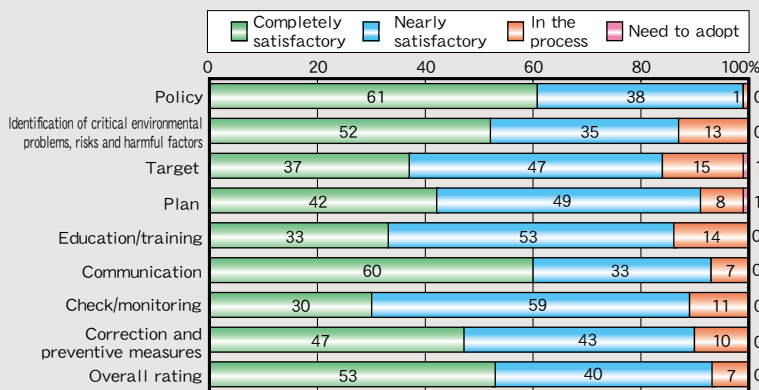


Oita Complex, Showa Denko K.K.

Members' Self-Assessment

Occupational Safety and Health

Only a few respondents answered "Need to adopt." To ensure safety, however, drastic measures need to be taken and for items such as "Identification of risks and harmful factors," "Education/training," "Check/monitoring," further improvements need to be made by Members to further increase the percentage of those answering "Completely satisfactory."



Chemicals and Product Safety

The Provision of Product Information

Preparing and Distributing Material Safety Data Sheets (MSDSs)

An MSDS is an instruction manual that is distributed by the supplier of chemical products to user companies. It provides them with the information necessary to handle chemical products safely and to prevent accidents, including the harmful impact of the products on human health and the environment, flammability, explosiveness and other properties, cautions for use and emergency measures. Although substances for which MSDSs are to be submitted are specified in the PRTR Act, the Industrial Safety and Health Act and the Poisonous and Deleterious Substances

Control Act, 83 of the 89 Members that responded to the questionnaire voluntarily issue MSDSs for substances (products) that are not subject to these laws and distribute these to their customers, based on the concepts of Responsible Care and product stewardship.

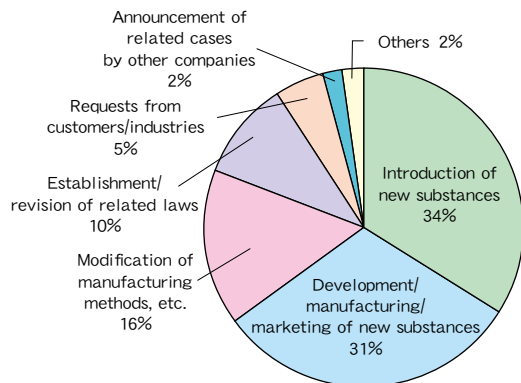
From the viewpoint of Responsible Care, suppliers of chemical products must know how their customers use or process their chemical materials, what commercial products are made from those materials, and what products are provided to consumers. As to the use of their products by customers, 71 of 89 respondents said that they collected information on the purpose of use for 80% or more of the products they supplied.

Prior Chemical Substance Safety Assessment

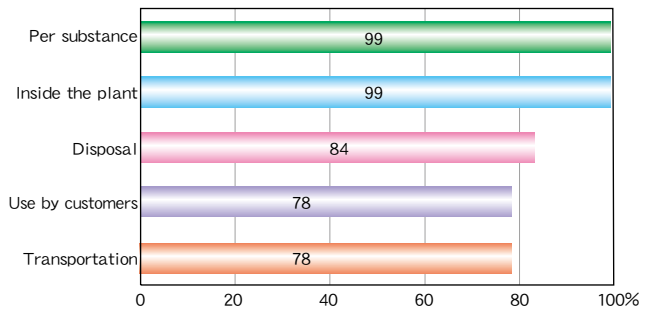
A Prior Chemical Substance Safety Assessment is conducted to identify the safety issues and concerns for chemical substances (explosiveness, inflammability, acute/chronic toxicity) and evaluate their effects on the users' health and the environment. A Prior Chemical Substance Safety Assessment is conducted when a new substance is developed, manufactured and sold, when an existing substance is newly introduced, and when the methods

of manufacturing, transportation, use or disposal for existing substances are changed. This assessment can be introduced as an emergency response as well as for risk reduction. Of Members responding to the questionnaire, 89% have prior assessment standards not only on the safety of each substance or safety inside their plants but also on transportation safety, use by customers, and disposal of their chemical products.

Reasons for Implementing Prior Assessment



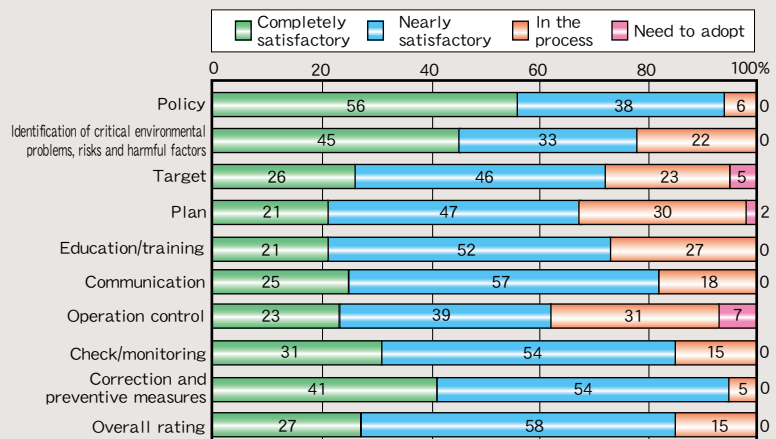
Application of Prior Assessment Standards (Multiple answers allowed)



Members' Self-Assessment

Chemicals and Product Safety

There were no substantial changes compared with fiscal 2008, and Members need to make further improvements to meet the checklist requirements for setting quantitative targets, risk management plans and, as a part of "Operation control," transferring technology and support overseas.



Distribution Safety

Members conduct a range of activities to reduce environmental and safety risks in the transportation of chemicals. They assess the impact of chemicals and evaluate the safety of transportation facilities to prevent accidents, while implementing emergency drills so that employees involved in the transportation of chemicals can cope immediately with emergency situations such as leaks. In addition, they prepare Yellow Cards and ensure that the transporters carry these cards to ensure that all those involved can get the information needed in case of emergency.

Preparation of a Yellow Card/Container Yellow Card

Transporters are required to carry official transportation documents for chemicals covered by the Poisonous and Deleterious Substances Control Act and the High Pressure Gas Safety Act. Considering the possibility of unpredictable accidents during transportation of substances that are not controlled, the JCIA promotes the use of emergency contact cards that describe the necessary emergency measures to be taken by tanker drivers, firefighters, police officers and others involved. Because these important measures are printed on highly visible yellow paper, the contact card is called a Yellow Card.

When a range of chemicals are transported in containers simultaneously, multiple Yellow Cards will be carried with the chemicals. For such cases, the JCIA uses label-type Yellow Cards (Container Yellow Cards), which are placed on the containers for the chemicals so that they can be identified

promptly and accurately and so that the people involved can respond quickly in an emergency.

Use of Yellow Cards

Of Members supplying products for which Yellow Cards are used, 95% answered that the cards were always carried by the transporters of their products.

Introduction of Container Yellow Cards (label-type cards)

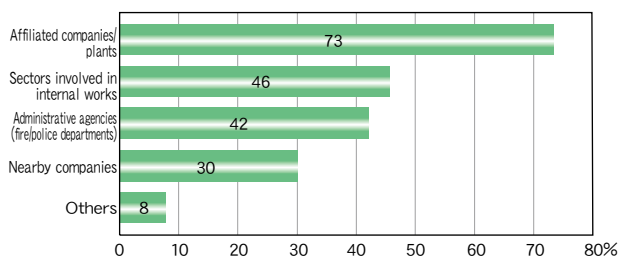
Container Yellow Cards were introduced in fiscal 2002 and 92% of Members supplying products for which Yellow Cards are used have completely or partially adopted these label-type cards. Even after the introduction of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), these cards will continue to be used to provide the people who have to handle emergency situations with the information they need.

Measures for Emergencies

Ninety-nine percent of Members have prepared their own manuals for emergency situations and 98% have established their own around-the-clock contact networks. Also, 84% have established mutual support systems for emergencies involving combustible solids/liquids/gases, high-pressure gases, corrosive substances and acutely toxic substances.

Mutual support partners include affiliated companies/plants, the sectors involved in internal works and administrative agencies (fire/police departments). Seventy-five percent of Members have implemented emergency drills with their mutual support partners, including communication training and desktop and field training, as shown in the table below.

Mutual Support Partners for Emergencies (multiple answers allowed)



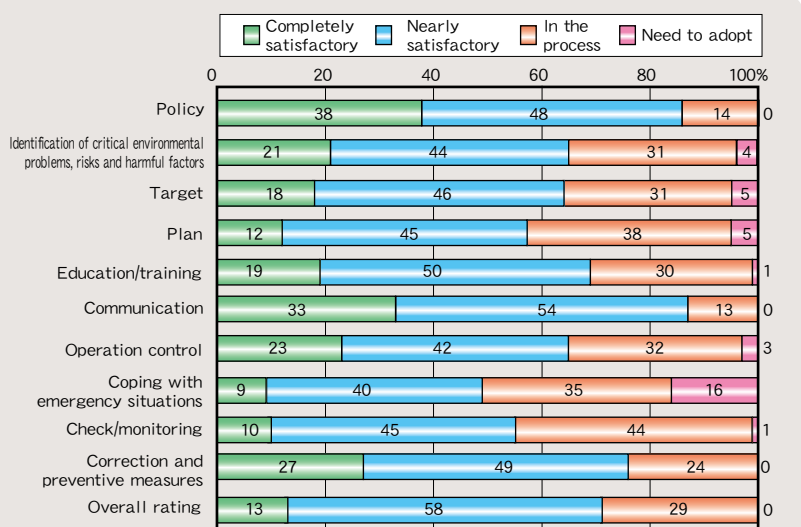
Emergency Drills with Mutual Support Partners (Number of Companies Implementing the Drills)

Type of training	Communication training	Desktop training	Field training
Mutual support partners			
Administrative agencies	27	11	26
Nearby companies	22	14	19
Affiliated companies/plants	45	22	35
Sectors involved in internal works	34	17	33



Distribution Safety

The rating for "Coping with emergency situations" is generally low because the checklist requires that multiple measures be implemented, including creating emergency response manuals and organizations, holding dialogues with local residents, and giving support to drills performed by related companies. Nonetheless, the percentages of companies who answered "In the process" and "Need to adopt" have been steadily decreasing. For other items, the percentage of companies answering "Need to adopt" has been generally decreasing.



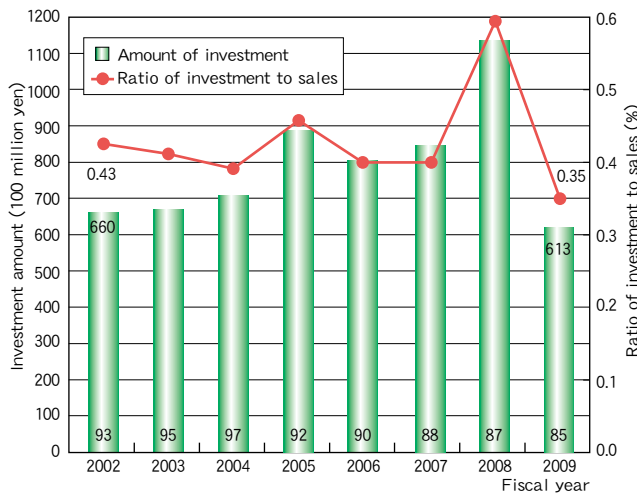
Investment in Environmental Protection and Safety

Trends in Investment in Environmental Protection

Members recognize the importance of environmental protection and continue to invest in environmental measures. In fiscal 2009, they invested a total of 61.3 billion yen (0.35% in terms of the ratio of investment to sales) in the construction and maintenance of environmental facilities to save energy and reduce CO₂ emissions as well as in the development of environment-friendly technologies and

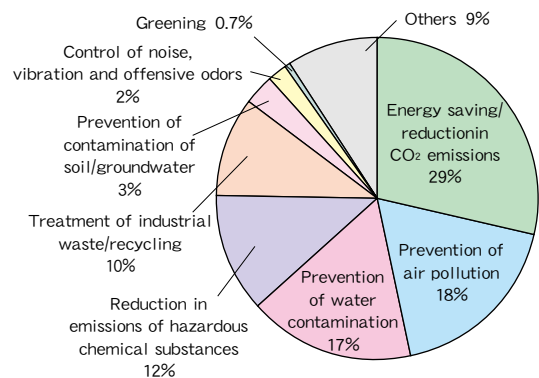
products, although markets, with certain exceptions, had not yet substantially recovered from the world recession. In the face of the extremely severe investment environment, Members have been continuing to invest in environmental measures, thereby steadily improving their environmental performance.

Investment in Environmental Measures



The figures in bars indicate the number of companies that submitted data.

Categories of Investment in Environmental Measures in Fiscal 2009

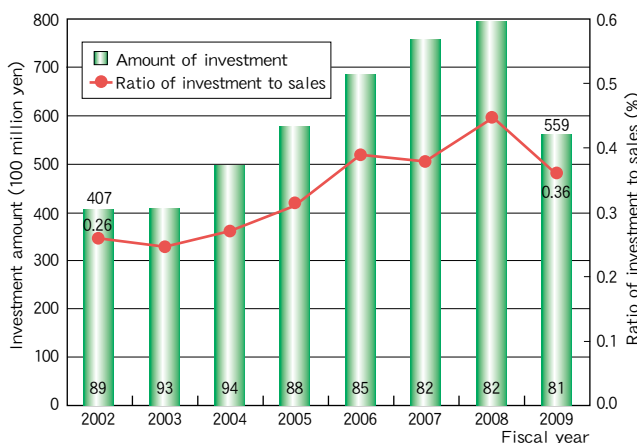


Trends in Investment in Process Safety and Disaster Prevention

Based on the recognition that the prevention of occupational and facility accidents is a major industry-wide commitment, Members have been continuing to invest in both equipment and management measures to ensure process safety and prevent disasters. In fiscal 2009, although most markets

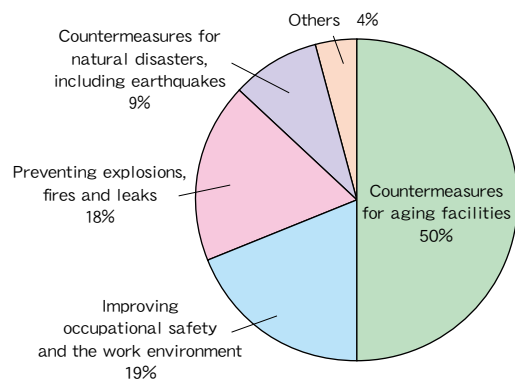
had not yet really recovered from the world recession, they invested a total of 55.9 billion yen (0.36% in terms of the ratio of investment to sales), an amount higher than that invested in fiscal 2004, to implement more measures for process safety and disaster prevention.

Investment in Process Safety and Disaster Prevention



The figures in bars indicate the number of companies that submitted data.

Categories of Investment in Measures for Process Safety and Disaster Prevention



Members' Management System

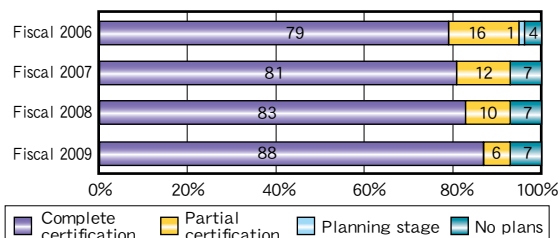
Responsible Care entails the implementation of the Plan, Do, Check and Act cycle (the so-called PDCA cycle). As a tool to implement this cycle, an increasing number of organizations are introducing ISO 14001-based and other environmental management systems (EMSs) as well as occupational safety and health management systems (OSHMSs).

Status of Members' Adoption of Management Systems

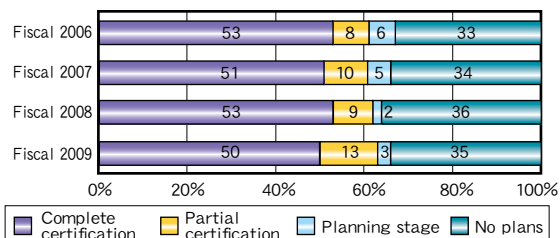
Environmental Management Systems (EMSs)

According to the results of a survey of Members, 88% of 88 respondents have acquired certification for their EMSs, such as ISO 14001 certification at all their production sites (plants). The number of Members who have acquired EMS certification at their R&D sites has remained almost at the same level.

Status of EMS Certification (Production Sites)



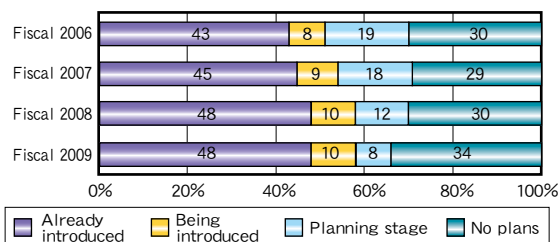
Status of EMS Certification (R&D Sites)



Occupational Safety and Health Management Systems (OSHMSs)

An OSHMS is designed to reduce latent risks and raise health and safety standards in the workplace, which will in turn help achieve zero occupational accidents. An increasing number of companies are introducing this system as an effective way of managing occupational safety and health. In the questionnaire, 58% of 89 respondents have introduced OSHMSs and have verified their systems by external certification, such as OHSAS 18001 or by internal audit.

Trend in Adoption of OSHMSs

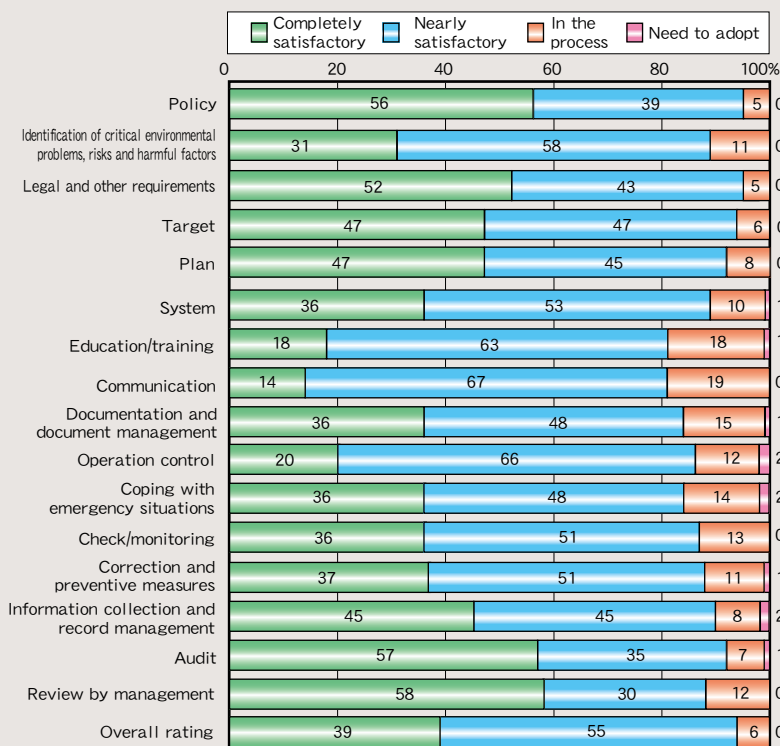


Members' Self-Assessment

Management System

The adoption of management systems such as ISO 14001, ISO 9000s and OHSAS 18001 management systems is advancing, and the percentage of Members responding "Nearly satisfactory" or "Completely satisfactory" exceeded 80% for all the items.

The percentage of respondents who answered "In the process" was relatively high for "Education/training," "Communication" and "Operation control," because there are so many procedures and criteria to be followed on the internal audit checklist, but improvements have been made steadily regarding these items as well.



Chemicals and Product Safety

Toward Achievement of the SAICM Goal

At the UN Conference on Environment and Development held in 1992, six program areas were adopted for the management of chemical substances, which included risk assessment, classification and labeling, risk reduction and strengthening national capabilities for the management of chemicals. This adoption marked the beginning of the world movement toward formulating the chemicals management policies presently implemented by countries.

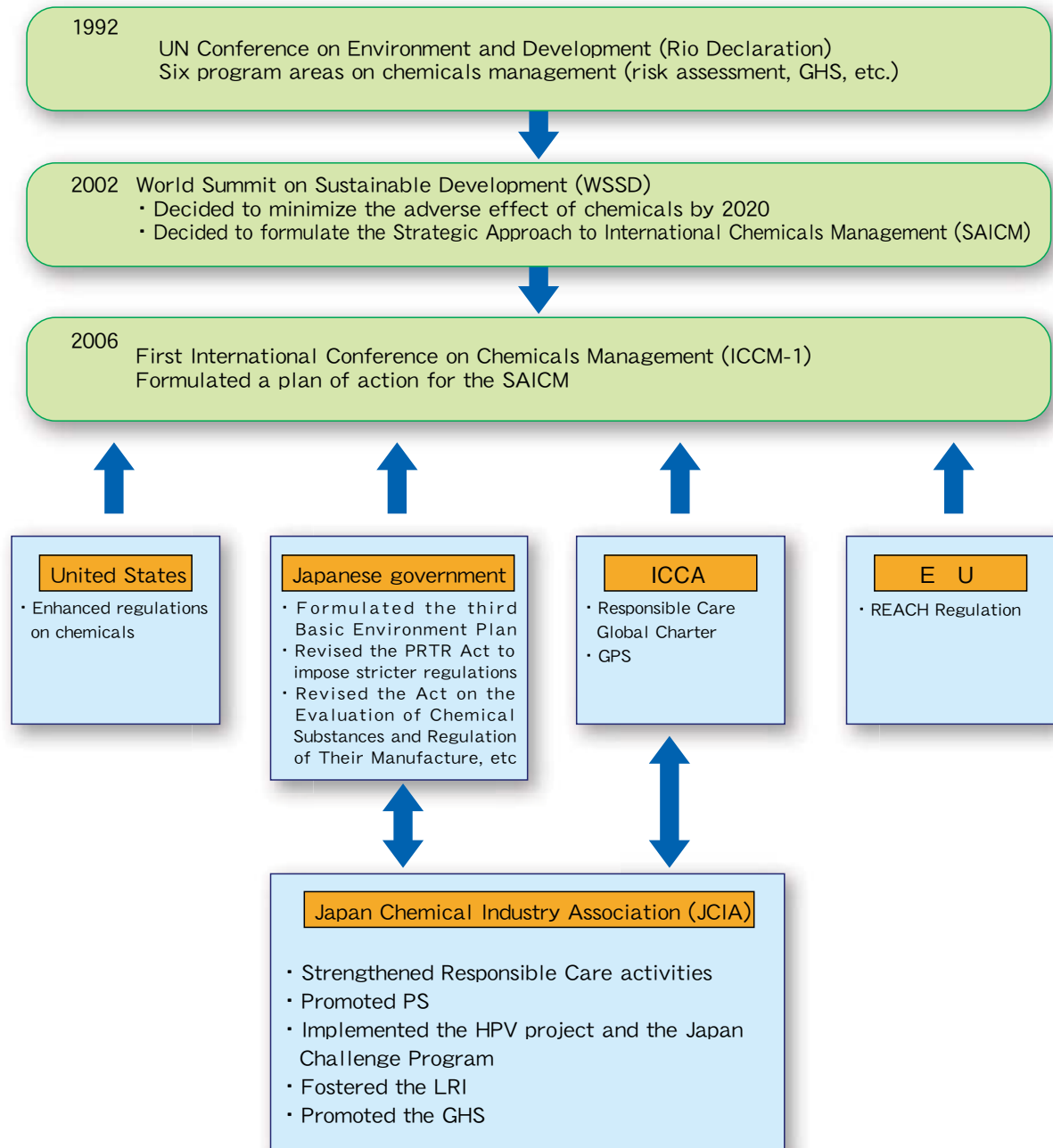
Subsequently at the World Summit on Sustainable Development (WSSD) held in 2002, participants decided to uphold the following as the basic goal for chemicals: "By 2020, to use and produce chemicals in ways that minimize significant adverse effects on human health and the

environment" through risk assessments and management methods.

By 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment. To achieve this goal, it was also decided that the international community would formulate the Strategic Approach to International Chemicals Management (SAICM) by 2005.

In response, each country and region collaborated together under the leadership of the secretariat of the UN Environment Programme (UNEP) to hold the first International Conference on Chemicals Management (ICCM-1) in Dubai in 2006, where participants adopted an overarching policy strategy

Background for the Formulation of the SAICM and Related Activities of the JCIA



to implement the SAICM. This strategy is outlined in the Dubai Declaration on International Chemicals Management, which was made through cooperation between national governments, industries, workers and NGOs, and also other documents were created to outline the concept and structure of the strategy and show the implementation methods and guidelines. The ICCM, where the relevant activities and progress of the countries will be evaluated, is scheduled to be held every three years.

The International Council of Chemical Associations (ICCA) has been fostering voluntary Responsible Care activities since 1989, and at the first International Conference on Chemicals Management, the Council announced the implementation of the Responsible Care Global Charter and the Global Product Strategy (GPS) as specific measures to implement the SAICM. The Charter is designed to foster the chemical industry's Responsible Care activities while the GPS is designed to strengthen product stewardship and is composed of multiple strategic activity items. These items include the management of chemicals based on risk assessment and management across the supply chain; information disclosure to society; the promotion of scientific research; public announcement of activity results; cooperation with national governments; and the provision of opinions regarding the policies on chemicals management.

The JCIA has been working to ensure the safety of chemicals and chemical products as a member of the ICCA and at present is focusing on activities to implement the SAICM. In particular, the Association began conducting a voluntary activity, the Japan Initiative of Product Stewardship (JIPS), to promote the management of chemicals across the supply chain as a core of the GPS and is also examining a system

to ensure information disclosure. Based on multilateral cooperation between Japan, the United States and Europe, the JCIA has also been investing a vast amount of money in promoting the GHS for the global classification and labeling of chemicals, implementing the HPV project to collect data on the toxicity of major chemical substances, and in the LRI project to improve risk assessment and management regarding the effects of chemicals on human health and the environment.



Abbreviations

GHS: Globally Harmonized System of Classification and Labeling of Chemicals
An international system to ensure global harmonization for the classification and labeling of chemicals
GPS: Global Product Strategy
Enhanced product stewardship (PS) strategy implemented by the ICCA and designed to achieve the SAICM goal
HPV: High Production Volume Chemicals (See p. 26)
In the HPV project, OECD member states cooperate to collect data on the toxicity of high production volume chemicals.
Japan Challenge (See p. 26)
Under the Japan Challenge Program, industry and the government jointly collect and disclose information on the safety of chemical substances produced in or imported into Japan in large volumes.
LRI: Long-range Research Initiative (See p. 26)
Voluntary research activity conducted by the Japanese, European and American chemical industries to identify the adverse effects of chemical substances on human health and the environment
PS: Product Stewardship
Activity conducted by product manufacturers to fulfill its mission, which is to assume responsibility for the impact of their products on the health and safety of people and the environment throughout the life cycles of the products across the supply chain
REACH: Registration, Evaluation, Authorization and Restriction of Chemicals (See p. 27)
Comprehensive regulation imposed on chemical substances in the European Union, which mandates companies to assess the safety of chemical substances including existing ones
SAICM: Strategic Approach to International Chemicals Management

Investigation/Research on the Safety of Chemical Substances

HPV: The Organization for Economic Cooperation and Development (OECD) has instituted a data gathering and testing project to assess chemical hazards for approximately 4,800 high production volume chemicals (HPV chemicals, the annual production of which is above 1,000 tons, or one million pounds in the United States). The JCIA expressed its decision to participate in the project in 1998 and encouraged its members to join. Currently about 120 Japanese chemical companies take part in the project. Under the HPV initiative led by the ICCA, assessment reports are to be submitted for 1,000 substances. As of March 2010, commitments were made for 917 substances, and assessment reports have already been submitted for 671 substances, including 51 substances for which Japan has submitted assessment reports. The assessment results are disclosed on the OECD's Integrated HPV Database website.*¹

*¹ <http://webnet.oecd.org/hpv/ui/Default.aspx>

The Japan Challenge Program: In 2005, this industry-government collaboration program was established as a framework for collecting safety information about chemical substances and disseminating the collected information widely to the public. A total of 645 substances that are produced in or imported to Japan in annual quantities exceeding 1,000 tons are selected as priority substances for information collection. The safety information has been continuously collected in line with similar overseas programs, and data collection is scheduled to be completed by the end of fiscal 2011, which is the reporting deadline. The information thus collected has been centrally managed on the government's database (J-CHECK) and is widely disclosed to the public via the Internet and by other means.

LRI: The Long-range Research Initiative (LRI) is a joint research activity that the chemical industries in Japan, the United States and Europe are jointly conducting to examine the influences of chemical substances on human health and the environment with the following objectives:

- To expand scientific knowledge on chemical substances and their impact on health and the environment
- To develop new testing and screening methods to enhance the chemical industry's capabilities of managing products
- To support governments in their science-based decision-making on public policies

Using funds contributed by member companies, the JCIA supports research initiatives that take into account the unique situation in Japan, focusing on themes of special importance to the chemical industry in the following five fields: endocrine disruptors; neurotoxicity; chemical carcinogenesis; immunotoxicity; and improvements to the precision of existing assessments. Every year, the planning and management panel comprising researchers of member companies compiles a report that describes the basic research approaches to be taken, and prepares guidelines on the specific research themes to be pursued, incorporating the opinions of external experts. Based on

these documents, the panel invites researchers to make research proposals, adopts some of the proposals and manages the progress of the selected research activities. The report and guidelines are reviewed as required to meet the needs of the chemical industry and society at large and in consideration of the progress made in science. In fiscal 2009, the JCIA supported research on a total of 30 themes selected in line with the policies shown in the documents. In fiscal 2009, the JCIA celebrated the 10th anniversary of the launch of research solicitations under the LRI program. Looking back on past activities, the Science Task Force Committee discussed the research fields and themes to be tackled and decided to focus on the following themes: risk assessment methods, use of omics*² technologies, replacing animal experiments, safety assessment of nanomaterials and sensitivity syndrome and asthma caused by chemical substances.

In the 10 years of LRI activity, the JCIA supported about 140 researchers in conducting research on a total of some 230 themes, and the researchers achieved results in the fields of endocrine disruptors, neurotoxicity, chemical carcinogenesis, immunotoxicity, and improvements to the precision of existing assessments.

In fiscal 2010, the JCIA removed "endocrine disruptors" from the targeted research fields and instead added "ecosystem (environment) toxicity" to the fields, and created a report and guidelines incorporating the results of examinations made by the Science Task Force Committee. Subsequently in March 2010, the JCIA started to ask for research proposals.

For details, please visit the LRI website operated by the JCIA (<http://www.j-iri.org/english/index.php>).

*² Omics: Method to measure and analyze all molecular data concerning the proteins and genes of living organisms in an exhaustive manner



Enhancing Product Stewardship

The ICCA set out guidelines to implement product stewardship (PS), which provides the foundation for activities that promote the Global Product Strategy (GPS) and the Responsible Care Global Charter toward achieving the SAICM goal.

The RC Committee established a working group to revise Codes of Responsible Care to ensure that the Codes conform to the PS guidelines and to collect risk management

examples from Members to help them enhance information communication and risk management across the supply chain. The JCIA is creating risk assessment (RA) guidelines that outline methods used to assess the possible risks of chemical products on human health and the environment.

In fiscal 2010, the JCIA and the RC Committee will support the implementation and promotion of product stewardship as one integrated organization.

Compliance with the REACH Regulation

Under the REACH Regulation on chemicals, which came into force in Europe in June 2007, companies manufacturing in or importing into Europe chemical substances in amounts of 1,000 tons or more per year or carcinogenic, mutagenic and reprotoxic (CMR) substances in amounts of one ton or more per year should register those substances by November 30, 2010. The Classification, Labeling and Packaging (CLP) Regulation came into force in Europe in January 2009 to align the classification and labeling system implemented for chemicals in the region with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Accordingly, companies are required to classify, label and produce notifications on their chemicals in compliance with the CLP Regulation from December 2010.

The JCIA's REACH Task Force Team has been showing concerns about the REACH and CLP Regulations to the European authorities through the Japanese Ministry of Economy, Trade and Industry and the APEC Chemical Dialogue. In addition, the team has been providing the latest information and consulting services to JCIA member companies to support them in complying with the Regulations.

At the REACH workshop held by the JCIA in October 2009, the latest information on the REACH Regulation was introduced, the CLP Regulation was outlined, and the information communication and CLP-related measures actually implemented across the supply chain were introduced by lecturers invited from European and American upstream companies as well as from upstream and downstream companies in Japan.

As part of the seminars held on the management of chemical substances by the Ministry of Economy, Trade and Industry

between November and December 2009, the JCIA held lectures on the REACH Regulation in four places in Japan, thereby helping the government in its support for small and medium-sized enterprises. Also as part of the seminars held on environmental regulations in Europe by the Japan External Trade Organization, the Association organized lectures on the REACH and CLP Regulations in three places in the country.

The JCIA is also exchanging information with associations of downstream industries, such as the automobile, electrical and electronics industries, and in particular the Association cooperates with the JAMP* through regular meetings, etc. The JCIA will further enhance activities aimed at compliance with the REACH and CLP Regulations to support its member companies in response to their needs.

*JAMP: Japan Article Management Promotion Consortium

A cross-industry organization designed to build and promote a concrete system to appropriately manage information on chemical substances contained in parts and molded parts and to smoothly disclose and communicate that information across the supply chain



REACH workshop held by the JCIA

Measures for Users

As for the management of chemical substances, more importance is now attributed to the risk-based management, which also considers exposure to chemicals in their use phase, than to the traditional hazard-based approach. Accordingly, chemical companies are required to manage their products throughout the product life cycle, including use of the products by customers.

The JCIA has been strengthening its ties with user industries both within and outside Japan to ensure the appropriate management of chemicals contained in users' products. For

example the Association constantly exchanges information with the Japan Automobile Manufacturers Association and the Japan Auto Parts Industries Association and supports them in managing the system for the Global Automotive Declarable Substance List (GADSL). Also as a specific example of close cooperation with other industries, the JCIA dispatches personnel to the domestic committee and working group of the IEC TC111 in order to support the electrical and electronics industry in creating international standards.

Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

The GHS is a system to classify chemicals under globally harmonized rules according to their hazard types and levels and to show the related information in a clear manner using labels and safety data sheets. The number of countries that have adopted this system has been increasing since the United Nations recommended introduction of the system to countries in 2003. Following the revision of the UN's GHS document in July 2009, the JCIA has been revising

its GHS compliance guidelines for MSDS and labeling in order to promote the GHS and the classification project. The Association also set up a committee to prepare a draft for the inclusion of the GHS in the Japanese Industrial Standards (JIS) and to revise these standards for MSDS and labeling. As a result, JIS Z-7250:2010 and JIS Z-7251:2010 were issued in October 2010.

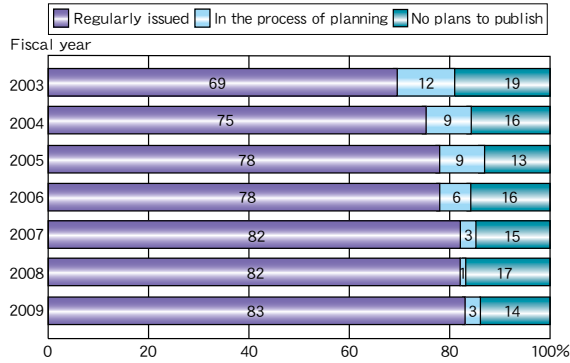
Members' Dialogue with Society

Publication of Responsible Care Reports

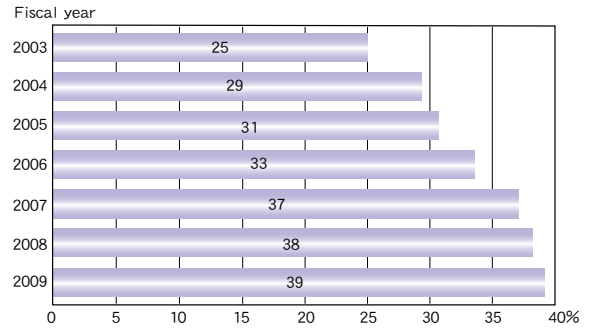
In fiscal 2009, as in fiscal 2008, a total of 74 companies (83% of Members who responded to the questionnaire survey) published Responsible Care reports. However, if the number of companies that did not publish their own reports but were introduced in the reports published by their parent

companies is included, the total rises to 89 companies (94%). Also as in fiscal 2008, the number of Members who published local site reports came to 34, accounting for 39% of respondents.

Publication of Responsible Care Reports



Publication of Site Reports



Contents of Reports

More than 70% of Members referred to the six Responsible Care items (environmental protection, process safety and disaster prevention, occupational safety and health, chemicals and product safety, distribution safety and dialogue with society) in their Responsible Care reports, as in their previous reports published in fiscal 2008. In particular, nearly 100% of companies who published their

reports answered in the questionnaire that in the reports they provided data on energy conservation, prevention of global warming, industrial waste and air and water quality with regard to environmental protection, in order to improve their accountability in response to increased social concerns over global environmental problems.

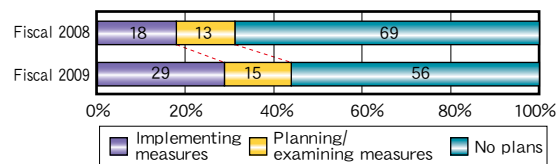
Measures for Biodiversity Conservation

The Convention on Biological Diversity was adopted at the Earth Summit held in 1992, and in May 2009 the Japanese Ministry of the Environment announced its Guidelines for Private Sector Engagement in Biodiversity. Along with this trend, companies are increasingly expected to implement measures for biodiversity conservation. In response, Nippon Keidanren issued a public Declaration of Biodiversity in March 2009, and among Members, more than 30 companies are endorsing the purport of this declaration as Promotion Partners.

to 15% year on year, and these percentages will continue to increase. Specifically, Members are working to establish a biotope, for voluntary forestation activities such as "corporate forests" and for the protection of endangered species.

The percentage of Members who answered "Implementing measures" increased from 18% to 29% and the percentage who answered "Planning or examining measures" from 13%

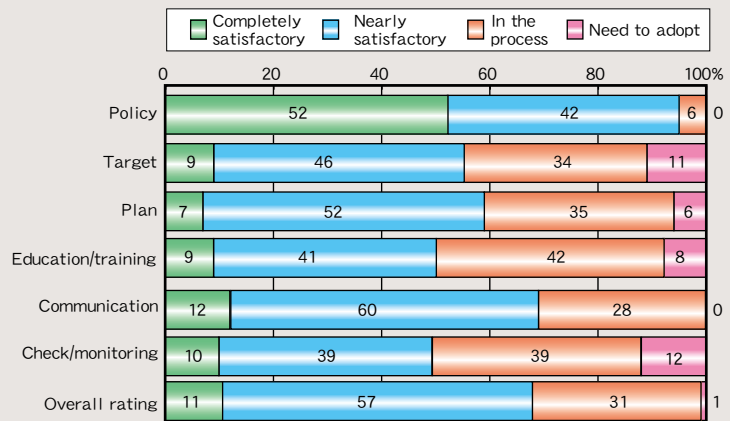
Measures to Conserve Biodiversity



Members' Self-Assessment

Dialogue with Society

As in fiscal 2008, out of the seven Codes of Responsible Care, Members' self-ratings are still the lowest for "Dialogue with Society," but the percentage of Members who answered "In the process" has decreased somewhat. Although both the number of areas where dialogue meetings are held and the frequency of the meetings have been steadily increasing, more than a few respondents still seem to think that they have not yet attained the level required by the checklist.



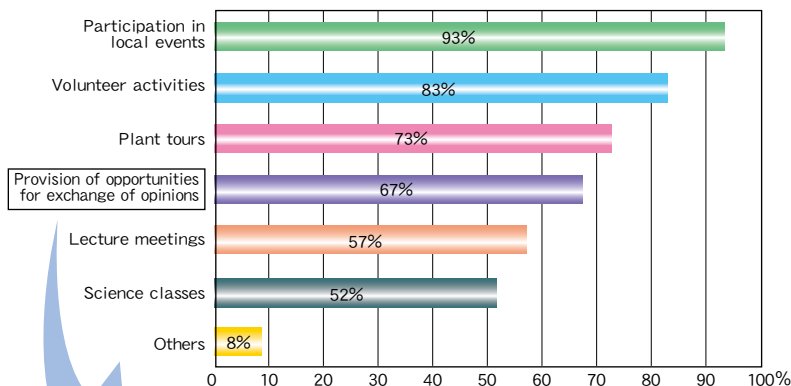
Members' Dialogue with Society (Communicating with the Community)

In working to promote communication with local community residents, Members participate in and support local events and voluntary activities, arrange plant tours for local residents and elementary/junior high school students and hold lectures in schools and at educational programs held for citizens. In fiscal 2009, 67% of Members provided opportunities for local residents to exchange opinions with them and held a total of 483 dialogue meetings with local residents in 128 areas.

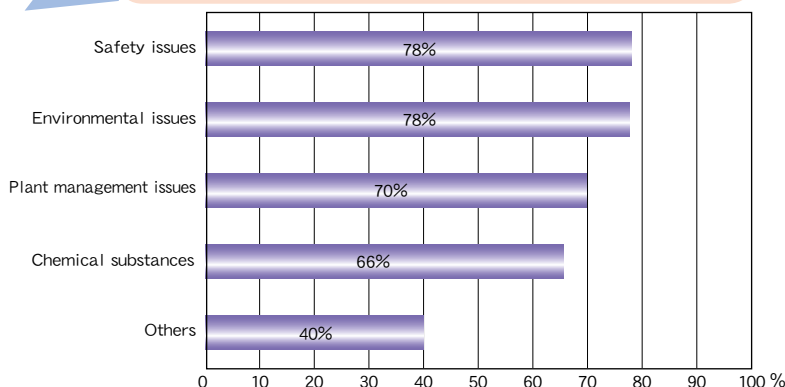
At these meetings, participants discussed mainly the following issues which were closely related to their community: environmental issues; safety issues including countermeasures for occupational accidents and other disasters; plant management issues including the addition of facilities and changes of land use; and issues concerning chemical substances, including matters related to the PRTR Act. All of the above activities demonstrate the commitment of Members to promoting communication with local communities in their business operations.

The percentage of Members engaged in educational activities such as organizing science classes increased by 9 percentage points to 52% year on year, reflecting the growing hope that children, from whom the next generation of leaders will emerge, will have an increased interest in chemistry and science.

Means of Communication (multiple answers allowed)



Issues Discussed in Meetings for Exchanges of Opinion (multiple answers allowed)



Tree-planting volunteers (Asahi Glass Co., Ltd.)



Meeting to exchange opinions (Mitsui Chemicals, Inc.)



Plant and research facility tour (Sumitomo Chemical Co., Ltd.)



Giving an extracurricular lesson to elementary school students (Hokko Chemical Industry Co., Ltd.)

RC Committee Activities (Dialogue with Society)

Companies in the chemical industry are voluntarily implementing environmental protection, safety and health measures in their Responsible Care activities and communicating the results of these activities to the public, thereby improving mutual understanding with society. The RC Committee supports these activities through its Dialogue WG and holds training sessions for Members to improve their skills in communicating with local communities. The RC Committee itself also discloses the results of its activities in its quarterly journal titled JRCC News, and in this Responsible Care Report as well as at briefings on the report's contents.

Dialogue with Local Communities

The dialogue meetings, which started in 1996, have been held regularly in 15 areas across the country (refer to the figure on the right). Through these meetings, Members have been continuing local dialogue with a range of stakeholders including community residents, local government officers, school teachers and NGOs. These meetings have thus played an important role in helping companies to deepen mutual understanding with their stakeholders.

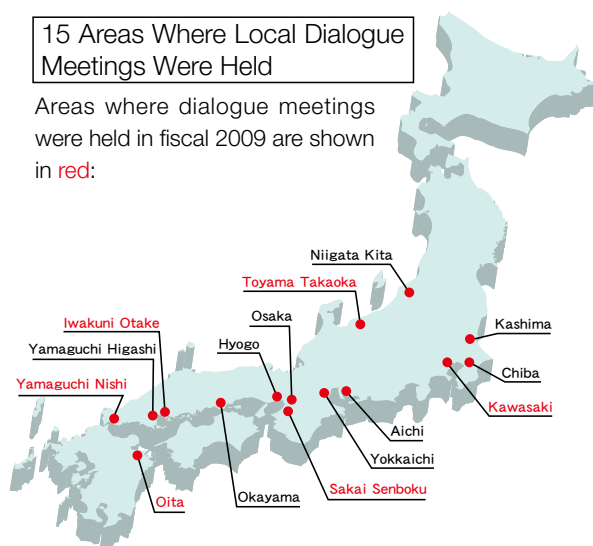
Members in each of the areas believe that it is important to continue these dialogues. Accordingly, they devise measures to encourage more local residents to participate in the meetings. For example, they conduct prior surveys to identify themes that will interest local residents and incorporate the results when deciding on the program for the meetings, organize factory tours as part of the meetings, and increase the time for direct dialogue through panel discussions and Q&A sessions. At the meetings, Members avoid using technical terms as far as possible and make more use of photos and diagrams as reference material in order to give easy-to-understand explanations of their corporate activities. Participants have begun to raise hard-to-answer questions and make difficult requests on issues that could be further improved, which implies that mutual understanding has deepened as hoped.

In fiscal 2009, the RC Committee held local dialogue meetings in six areas (Kawasaki, Toyama Takaoka, Sakai Senboku, Iwakuni Otake, Yamaguchi Nishi and Oita), which helped Members foster communication with local residents. Participants at these meetings now include representatives of local NGOs, school teachers, government officials, labor union members and university students, in addition to nearby residents.

The RC Committee has been holding annual risk communication training seminars since fiscal 2004 with

15 Areas Where Local Dialogue Meetings Were Held

Areas where dialogue meetings were held in fiscal 2009 are shown in red:



the aim of supporting these local dialogue meetings. The seminars are designed to help Members improve their communication skills in giving more intelligible explanations at the meetings. The Committee holds a meeting of representatives of these local dialogue meetings twice a year, at which participants report on their local meetings, as well as, share problems identified in each area and methods to make improvements. These biannual meetings are expected to help improve the quality of the dialogue.

In fiscal 2008, the RC Committee established a system to support individual facilities or groups of facilities that hold dialogue meetings in areas other than the 15 areas. In fiscal 2009, two facilities held dialogue meetings under the system.



Local dialogue meeting held in the Toyama Takaoka area



Local dialogue meeting held in the Oita area

Dialogue with Citizens

The RC Committee has also been actively organizing dialogue meetings with ordinary citizens.

On November 16, 2009, the Committee held a dialogue meeting with consumers focusing on the chemical industry's responses to global warming, inviting four people from three consumer organizations. At the beginning of the meeting, a lecture was given on the concept of cLCA * and on the contributions made by chemical products to reducing CO₂ emissions, using the actual cLCA results (reported in July, 2009). The lecture was intended to increase participants' awareness of the chemical industry's contributions to reducing CO₂ emissions.

The Committee held a dialogue meeting on the same theme in Tokyo on December 7, 2009 with the participation of 11 consumers from seven organizations. Consumers are now increasingly interested in reducing CO₂ emissions as an issue related to their daily lives, and the meeting provided an important opportunity for consumers and companies to exchange opinions on the issue.

The Committee also held a dialogue meeting on the chemical industry's responses to global warming with teachers of science at junior high schools in Tokyo on March



Dialogue meeting with consumers held in Tokyo

13, 2010. At the meeting, which was the third of its kind, participating teachers actively raised questions to company representatives. The meeting has established itself as a regular event.

*cLCA: Life cycle analysis of chemical products focusing on CO₂

Report Presentation

The RC Committee has been holding public meetings to present the contents of its Responsible Care Report in Tokyo and Osaka every year. In addition to Members, the Committee invites representatives of governmental agencies, consumer organizations, labor unions, universities and mass media companies. In fiscal 2009, the Committee held a meeting in Tokyo on December 10 attended by 100 people, and one in Osaka on December 15 attended by 83 people. At both of the meetings, Director Taguchi of the JClA's Technology Affairs Department gave a lecture titled "New measures to reduce greenhouse gases" on cLCA analysis, which the ICCA had used to investigate the climate change problem—a problem that was attracting much attention from the public. Subsequently the Committee explained its Responsible Care Report 2010 and the related data. In addition, Daicel Chemical Industries, Ltd., Mitsubishi Chemical Corp. and Mitsubishi Rayon Co., Ltd. gave presentations on the measures they were taking to prevent occupational accidents, reduce waste and conserve energy. The Committee conducts a questionnaire survey of participants after these meetings and incorporates the results in organizing the next meeting. In the last survey,

83% of respondents answered that their understanding of Responsible Care had either "improved" or "greatly improved" as a result of the meeting, which was clearly providing a lot of participants with a meaningful opportunity to learn about Responsible Care. Some respondents evaluated the lectures and presentations given by companies as useful while others thought that they were too technical. The Committee will find a way to solve this conflicting need at a later date.



Report presentation in Tokyo

Interaction among Members

Responsible Care Award

The Responsible Care Award was initiated in fiscal 2006 to commend individuals or groups of individuals who contributed to promoting and improving Responsible Care activities. This award is intended to increase the motivation of those engaged in Responsible Care activities and encourage these activities. The following table shows the award winners for fiscal 2009, which is the fourth year of the award.

Award Winner	Reason for Commendation
Tomio Egami, Yoshihide Ito, Keiko Goto and Kyoko Kameo Mie Plant, ADEKA Corp.	Improvements to the work environment by individual efforts
Tetsuyuki Tsuda and Takuya Kusamiya Kao Corp.	Establishment of a PRTR management system
Eiji Yoshimoto, Ikuhira Sugamori, Masaaki Yasuzawa and Masaru Tanaka Hikone Plant, Showa Denko K.K.	Increasing environmental awareness through recycling aluminum cans
Yoshiki Kurotobi, Michio Shinohara and Kayo Maie Tsukuba Research Laboratory, Sumitomo Chemical Co., Ltd.	OSHMS system-based safety and health activities at the Tsukuba Research Laboratory
Koichi Omura, Hiroyuki Matsuno and Fumito Sakurai Aichi Plant, Nippon Paint Co., Ltd.	Promoting occupational safety and health
Iwakuni-Ohtake Works, Mitsui Chemicals, Inc.	Continuation of local contribution activities across two prefectures, two cities and one town

The commendation ceremony was held as part of the interaction meeting held on July 8, 2010 by the RC Committee, at which Members looked back on the first half of fiscal 2009. After receiving commendations from the RC Committee, the winners gave presentations on the activities that they had been steadily conducting over a number of years. The presentations were all very useful for other companies.



Responsible Care Award winners

Interaction and Study Meetings for Members

The Member Relations WG holds interactive and study meetings to promote information exchange and to upgrade the skills of Members.

The WG held interactive meetings in Osaka on July 16, 2009 (with 60 participants) and in Tokyo on February 9, 2010 (with 43 participants) to review the first and second halves of the fiscal year. Participants exchanged opinions in small in-depth discussion groups of about 10, and they actively debated the themes of their choice, including "global warming problems," "reducing industrial waste," "management of chemical substances," "occupational safety," "process safety and disaster prevention," and "Responsible Care activities." In each of the groups, the person who proposed the discussion theme first introduced some specific examples and then all participants actively exchanged their opinions, listing the problems faced by their companies and giving examples of activities that had proved to be successful.

The WG also held study meetings focusing on building a safety culture. As part of the meetings, a lecture was

given on the relationship between the daily life of a top executive and occupational safety on November 13, 2009 and another was given on how to learn lessons from past failures on February 23, 2010. The lectures were based on experience and were very meaningful and highly evaluated by participating Members.



Discussing in a small group at the interactive meeting

International Activities

Responsible Care activities are conducted in 53 member states and regions based on the action policies formulated by the Responsible Care Leadership Group (RCLG) of the ICCA. The JCIA attended the RCLG's regular meetings held in Orlando, Florida in the United States in April 2009 and in Moscow in October of the same year and actively participated in the discussions to decide on the policies. At present, Responsible Care activities are focusing on expanding the number of people involved in Responsible Care, promoting PS and the GPS and on consistently collecting key performance indicators (KPIs).

The JCIA is supporting the Japan Initiative of Product Stewardship (JIPS), an activity for entities involved in implementing PS and the GPS in Japan. The Association is also supporting the organization of workshops for implementing PS and the GPS mainly in Asia.

In Asia, the Asia Pacific Responsible Care Organization (APRO) has been leading the enhancement of Responsible Care activities and as part of this effort the Asia Pacific Responsible Care Conference (APRCC) was held in Tokyo

in October 2009. For details, see Responsible Care Report 2009. Also under the support framework provided by the Japan External Trade Organization (JETRO), the JCIA has been formulating medium- to long-term plans to spread and improve Responsible Care activities in Asian countries while dispatching lecturers for seminars on Responsible Care.



Workshop on PS and the GPS held in South Korea

Responsible Care Verification

Responsible Care Verification for Fiscal 2009

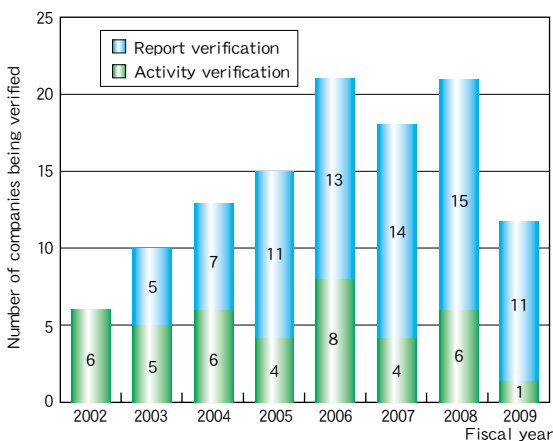
Activity verification (one company): Nihon Nohyaku Co., Ltd.

Report verification (11 companies): Kao Corp., Daicel Chemical Industries, Ltd., Sanyo Chemical Industries, Ltd., Kaneka Corp., Nippon Shokubai Co., Ltd., Asahi Kasei Corp., JSR Corp., Ube Industries, Ltd., DIC Corp., Kyowa Hakko Kirin Co., Ltd. and Denki Kagaku Kogyo K.K.

Responsible Care verification was conducted for an eighth time in fiscal 2009. Since the start of the verification in fiscal 2002, a total of 116 companies have undergone verification (with 40 companies undergoing activity verification and 76 undergoing report verification).

In recent years, from among companies that have received Responsible Care verification the number of companies that devote many pages in their RC reports to introducing their CSR activities on governance, compliance, social

contribution, etc. and then refer to those reports as CSR reports has been increasing. In response to this trend, the Verification Center is also improving the report verification method and holding training seminars to help each verifier deepen their understanding of the improved verification method. As part of the role the Verification Center plays in report verification, the Center also gives advice to companies to help them produce better RC reports.



Our Expectations for Responsible Care



Ikumi Nakayama
(Environmental counselor)

My first job after graduating from school 25 years ago was to produce material safety data sheets (MSDSs) that were sent together with chemicals when they were imported or exported. At that time, Japanese chemical companies did not prepare or provide MSDSs themselves, and I had to arrange for the sheets to be sent from Europe or the United States or produce them myself from scratch using dictionaries and reference material. Now, however, chemicals are well managed in Japan in compliance with the PRTR Act, and MSDSs are regarded as an

everyday chemicals management tool. In addition to this, companies, including downstream companies, are sharing and managing more information to comply with the REACH Regulation while being increasingly required to assess the risks involved in the manufacture and use of chemical products. To meet these requirements, companies have to make considerable effort, but this also implies that many issues have been left unsolved until recently.

Although the molecular structure of chemical substances interests me, many people are against the use of chemicals. For example I have a friend who says, "I don't like chemicals and avoid using them," perhaps out of fear of chemical toxicity and also from a lack of knowledge. In fact, however, she is happy to use chemical disinfectants, and this implies that the general public has only vague criteria for how chemicals are used. Chemical companies hold dialogue meetings as a way to solve scientific and psychological problems with chemistry. For more than 10 years I have been involved in the regional dialogue meetings held by the Responsible Care Committee in 15 sites across the country, including at petrochemical complexes. Through

meetings with local residents, factories began to understand their concerns. Before these meetings were held, factories used to say only what they wanted to say to local residents in a unilateral manner and did not care about the lack of two-way communication. Even now, more than a few companies do not respond fully to the concerns of local residents; they need to improve their attitude as well as what and how they communicate with local residents. Companies should not regard concerns raised by members of society as complaints. They should deal sincerely with the public's concerns through dialogue, acknowledging the existence of gaps in ways of thinking between themselves and the general public.

Members of the public, on the other hand, need to start to feel responsible for their own safety and become "risk literate," instead of just leaving it up to companies to ensure their safety. I really hope that chemical companies will find the best way to reduce the environmental risks incurred by chemical substances throughout their life cycles and win more public trust in chemistry by encouraging dialogue with members of society, and they have my full support in doing this.



Yoshio Okamoto
Honorary Professor of
Nagoya University

We are surrounded by many chemical products and we cannot live without them. This fact is clear evidence that the chemical industry plays an essential role in society. Because of its significance in society, the industry needs to have its activities correctly understood by society all the more, and as a researcher in chemistry, I can easily appreciate the importance of the voluntary Responsible Care activities conducted by chemical companies. Unfortunately however, these activities are not generally well known by the general public or even by the community of chemists. Although JRCC

NEWS, which I receive on a regular basis, communicates details of these activities, I am afraid copies of this magazine are only sent to a limited number of people. I hope that the magazine will be read by more people, for example through being handed out to participants at the annual meetings of the Chemical Society of Japan. As part of their Responsible Care activities, chemical companies are promoting dialogue with society and the fact that they are making constant efforts to deepen mutual understanding with members of the public by holding exchanges with local residents is highly appreciated.

According to the latest issue of JRCC NEWS, the JRCC will be fully integrated with the Japan Chemical Industry Association (JCIA) and its activities will form part of the Association. The JCIA has long been promoting the Yume Kagaku 21 Campaign, an initiative to promote chemistry among young people, in cooperation with the Chemical Society of Japan, the Society of Chemical Engineers, Japan and the Association for the Progress of New Chemistry. As part of the campaign, the JCIA has sent senior high school students to the International Chemistry Olympiad. The event was held in Japan this year and shown on TV and attracted much public attention.

Yume Kagaku 21 is known by almost everyone who is involved with chemistry. I sincerely hope that JRCC's full integration with the JCIA will result in more efficient Responsible Care PR activities and improve the image of chemistry through a deeper understanding of chemistry by the public.

The UN General Assembly decided to make 2011, which is the 100th anniversary of the winning of the Nobel Prize in Chemistry by Marie Curie, an "International Year of Chemistry." Various chemical organizations are planning to put on events during the year to promote a better understanding of chemistry in society and encourage young people to have more interest in chemistry. These objectives are consistent with the action guidelines of the JRCC and the JCIA, and I hope that they will press on with their activities to make the International Year of Chemistry a truly fruitful year.

As I was finishing this article, I received the wonderful news that two Japanese chemists had been selected as winners of the Nobel Prize in Chemistry for 2010. I am confident that the activities of the JRCC and the JCIA will contribute to more Japanese researchers winning the Nobel Prize in Chemistry in the future.

The RC Committee Members

94 companies as of October 2010

ADEKA Corp.
Air Products Japan, Inc.
Asahi Glass Co., Ltd.
Asahi Kasei Corp.
BASF Japan Ltd.
Bayer Holding Ltd.
Central Glass Co., Ltd.
Chisso Corp.
Chugoku Kayaku Co., Ltd.
Daicel Chemical Industries, Ltd.
Daihachi Chemical Industry Co., Ltd.
Dai-ichi Kogyo Seiyaku Co., Ltd.
Daikin Industries, Ltd.
Dainichiseika Color & Chemicals Mfg. Co., Ltd.
Dai Nippon Toryo Co., Ltd.
Daiso Co., Ltd.
Denki Kagaku Kogyo K.K.
DIC Corp.
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Hokko Chemical Industry Co., Ltd.
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Japan Acrylic Chemical Co., Ltd.
Japan Carlit Co., Ltd.
JSR Corp.
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Kansai Paint Co., Ltd.
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Kao Corp.
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Kuraray Co., Ltd.
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Maruzen Petrochemical Co., Ltd.
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Mitsubishi Gas Chemical Co., Inc.
Mitsubishi Rayon Co., Ltd.
Mitsubishi Tanabe Pharma Corp.
Mitsui Chemicals, Inc.
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Nippon Bee Chemical Co., Ltd.
Nippon Chemical Industrial Co., Ltd.
Nippon Kayaku Co., Ltd.
Nippon Paint Co., Ltd.
Nippon Polyurethane Industry Co., Ltd.
Nippon Shokubai Co., Ltd.
Nippon Soda Co., Ltd.
Nippon Steel Chemical Co., Ltd.
Nippon Unicar Co., Ltd.
Nissan Chemical Industries, Ltd.
NOF Corp.
Polyplastics Co., Ltd.
Rohm and Haas Japan K.K.
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Sanyo Chemical Industries, Ltd.
Sekisui Chemical Co., Ltd.
Sekisui Plastics Co., Ltd.
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