

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

# Responsible Care

Report **2006**



レスポンシブル・ケア®

The Japan Responsible Care Council

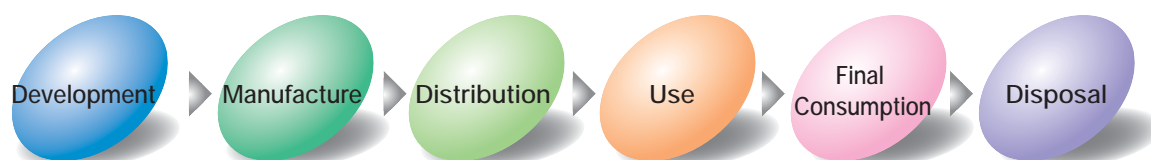
# Do You Know Responsible Care?

## What Is Responsible Care?

Chemical substances are now important and indispensable to our daily life. However, when improperly handled, they are also latently hazardous substances that threaten human health and the environment.

Although concerns over the health, safety and environment have become widespread as a result of the expansion of global environmental problems and the growth of industrialized regions, technological developments continue to face new dilemmas. Given these circumstances, chemical substances regulations have become limited in their capacity to fully preserve the health, safety and environment. Presently the public call for handlers of chemical products to take responsible and voluntary action to protect the health, safety and environment is greater than ever.

In response, the global chemical industry, comprising a multitude of corporations that handle chemical substances the world over, is working voluntarily to preserve the health, safety and environment in every process, from the development of chemical substances through their manufacture, distribution, use, final consumption and disposal as well as conducting dialogue and discussion with the public by openly disclosing the results of these efforts. These efforts are known collectively as Responsible Care.



Responsible Care was initiated in Canada in 1985. The year 1990 marked the establishment of the International Council of Chemical Associations (ICCA). The 52 countries around the world implement Responsible Care (as of October 2006). In 1995, the Japan Responsible Care Council (JRCC) was established within the Japan Chemical Industry Association (JCIA) by 74 corporations, primarily manufacturers and handlers of chemical substances. With the JRCC's establishment, corporate efforts to address environmental and safety concerns were united and intensified, and the goal of enhancing public understanding was undertaken. As of October 2006, the JRCC comprised 102 corporate members.

## The Responsible Care Logo

The logo, depicting a pair of hands and a model of a molecule, expresses the key message of handling chemical substances with care and the ICCA has adopted the logo as the common mark of international corporations and associations that implement Responsible Care. Permission to use the logo has been granted to the chemical industry associations of 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, the JRCC, and the JRCC members.



## Responsible Care Implementation Items

The JRCC and its members collectively take action in five principal areas:

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

The JRCC and its members also maintain

Dialogue with society

by publicly reporting the results of these efforts.

These efforts are spearheaded primarily by the Planning and Management Committee. Under the committee, there are the Steering Committee and five working groups, which are responsible for Annual reports, Dialogue, Member relations, International affairs, and Product Stewardship.

Refer to the JRCC's web site, <http://www.nikkakyo.org/organizations/jrcc/top-e.html>

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# Message from the JRCC Chairman



**Ryuichi Tomizawa**

Chairman

Japan Responsible Care Council

The Japan Responsible Care Council (JRCC) marked its 10th anniversary in April 2005. At this turning point, the JRCC held several events commemorating its 10th anniversary including the memorial lecture meeting in November 2005. Thanks are tendered to those concerned for providing special cooperation and support on these occasions. In the International Conference on Chemicals Management (ICCM) held in Dubai, February 2006, the Strategic Approach to International Chemicals Management (SAICM), which was positioned as a roadmap for achievement of the goal at the World Summit on Sustainable Development in 2002, was adopted.

As an organization of world chemical industries, the International Council of Chemical Associations (ICCA) has made efforts to promote the projects based on the Responsible Care activities. In the side event of the ICCM meeting, the ICCA officially launched the Responsible Care Global Charter which was welcomed by the international organizations concerned and clearly showed its policy to develop new voluntary activities.

The Japan Chemical Industry Association (JCIA)/JRCC revised "The JCIA Basic Policy on Environment and Safety" in line with the Global Charter for the first time in the past 15 years. Moreover, the JCIA/JRCC developed the three-year JRCC new midterm plan covering the period from 2006 to 2008 according to the new basic policy.

This new midterm plan includes the following six important aims. The JRCC puts forth considerable effort to promote the responsible care activities in wider areas with due consideration for the results of the previous midterm plans completed before 2006.

- 1) Further enhancement and promotion of product stewardship;
- 2) Promotion of continuous improvement and dissemination of Responsible Care activities;
- 3) Fulfillment of accountability by improvement of verification activities;
- 4) Further recognition of Responsible Care activities by society
- 5) Promotion of capacity building in ASEAN countries;
- 6) Enhancement of the functions of JRCC management system.

The Japanese economy is recovering from prolonged economic stagnation and the economic expansion period has hit a postwar record. According to OECD composite leading indicator, the overall world business situation has remained at a higher level despite its continuous downward trend characterized by the constant concern about slowdown in the U.S. economy. This situation makes the future of the Japanese economy uncertain and unpredictable.

Even under such a condition, in expectation of sustainable development in the 21st century, the Japanese chemical industry plays its roles in promoting environmental preservation on a global scale, taking measures to assure safety of chemical products and addressing important issues.

Recently, Corporate Social Responsibility (CSR) has had considerable impact on the corporate value. In the chemical industry, the concept of Responsible Care activity is regarded as the basis of CSR. In this sense, as the business sectors or the manufacturers involved in the chemical industry, the JRCC member companies have practically fulfilled CSR.

The JRCC continues to follow "the JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions," makes efforts to disseminate the Global Charter and steadily promotes the above-mentioned new midterm plan. We appreciate your further understanding of and support for our activities.

November 2006



## Board Members of the Japan Responsible Care Council

Chairman	<b>Ryuichi Tomizawa</b>	Chairman, Japan Chemical Industry Association President & Chief Executive Officer, Mitsubishi Chemical Corporation
Vice Chairman	<b>Kozo Okumura</b>	Senior Advisor, Dainippon Ink and Chemicals, Incorporated
Auditor	<b>Akira Ohira</b>	Chairman, Mitsubishi Gas Chemical Company, Inc.
Auditor	<b>Kaoru Onodera</b>	Executive Officer, Konica Minolta Holdings, Inc
Secretary General	<b>Masami Tanaka</b>	Vice Chairman & Director General, Japan Chemical Industry Association

# Establishment of the Global Charter and the revision of the JCIA's Guiding Principles

In 2005, the Responsible Care Global Charter was established and the JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions were revised, which greatly influenced the operations and activities of the JRCC.

## Establishment of the Responsible Care Global Charter

The Responsible Care Global Charter designed by the ICCA since 2004, has finally been enacted. The JRCC General Assembly approved and moved towards its implementation in 2005. This was first introduced in February 2006 at the International Conference on Chemicals Management held in Dubai.

The Responsible Care Global Charter is comprised of the following 9 key elements:

1. Adopt Global Responsible Care Core Principles.
2. Implement Fundamental Features of National Responsible Care Programs.
3. Commit to Advancing Sustainable Development.
4. Continuously improve and report performance.
5. Enhance the Management of Chemical Products Worldwide - Product Stewardship.
6. Champion and facilitate the extension of Responsible Care throughout the chemical industry's value chain.
7. Actively support national and global Responsible Care governance processes.
8. Address stakeholder expectations about chemical industry activities and products.
9. Provide appropriate resources to effectively implement Responsible Care.

## Revision of the JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions

The "JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions" established in 1990 were revised to re-align it with the newly enacted the Responsible Care Global Charter.

The revision of the Guiding Principles clearly honors the call for compliance of legal standards as well as promoting chemical management in cooperation with the rest of the world.

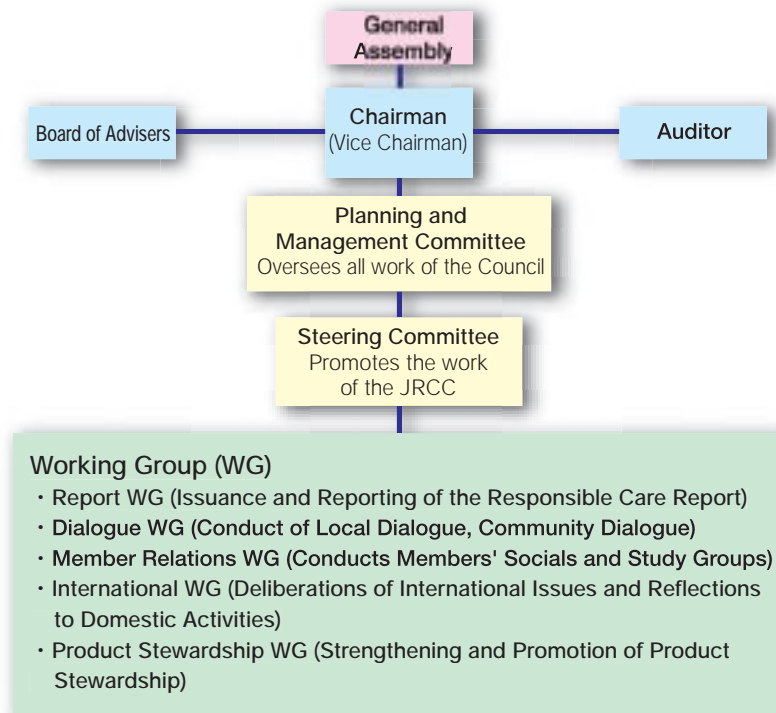
The Guiding Principles are comprised of the following 8 elements:

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 enhance 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.

# JRCC Management

Responsible Care is being implemented by the Secretariat under the JRCC Planning and Management Committee and five working groups as the focal point. Task forces may be temporarily created as necessary.

## Organizational Chart



## Member Activities



When members engage in the practice of Responsible Care, they abide by the seven Codes of Responsible Care, which provides for the basic implementation items, and strive to make the PDCA cycle turn by themselves.

They prepare their implementation program (Plan), perform their activities (Do), conduct self-assessment by internal audit (Check), prepare the Implementation Report and Performance Data to be submitted to the JRCC and at the same time, review and improve (Act), for reflection onto the next program.

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



# Members' Management System

The implementation of Responsible Care entails making the Plan (program) - Do (perform) - Check (evaluate) - Act (improvement) turn, in other words, the PDCA cycle. Environmental management Systems (EMS) such as ISO14001 is an advanced tool for this purpose. Recently, there is an increase in number of companies taking on Occupational Safety and Health Management Systems (OSHMS).

## Status of Member Adoption of Management Systems

### Status of Adoption of Environmental Management Systems (EMS)

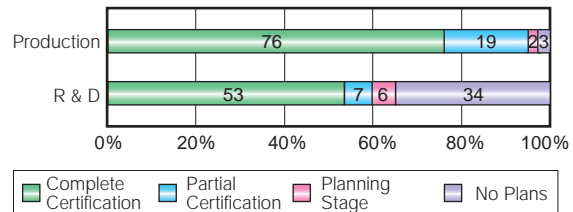
According to the results of a survey made of the JRCC Members (response from 92 companies) 76% of member companies have acquired EMS Certification for all production divisions (plants) such as ISO14001, while those with partial certification account for 19%, bringing to a total of 95%, similar to that of the previous year. Of 80 companies surveyed, those who have acquired some form of certification for their Research and Development Divisions account for 53%, and increase of 5 points as compared to the previous year.

### Introducing Occupational Safety and Health Management System

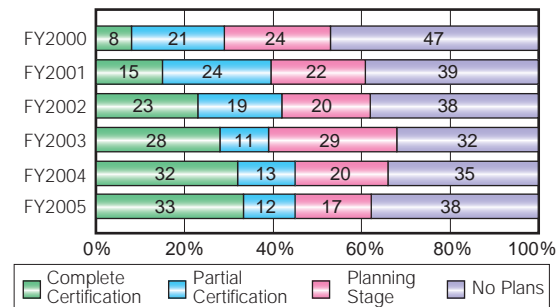
Every year the movement to aim for Zero Accident intensifies as companies adopt the Occupational Safety and Health management System (OSHMS), in order to reduce latent risks and raise health and safety standards.

Members who have adopted the OSHMS have increased from 8% in 2000 to 33% in 2005. The establishment of this system has been verified not only by internal audits but also by the acquisition of external certifications. Moreover, among the members who have completed their acquisition and those who are in the process of acquisition, 30% have acquired external certification such as OHSAS19001 and 79% do internal audits.

### Status of EMS Certification

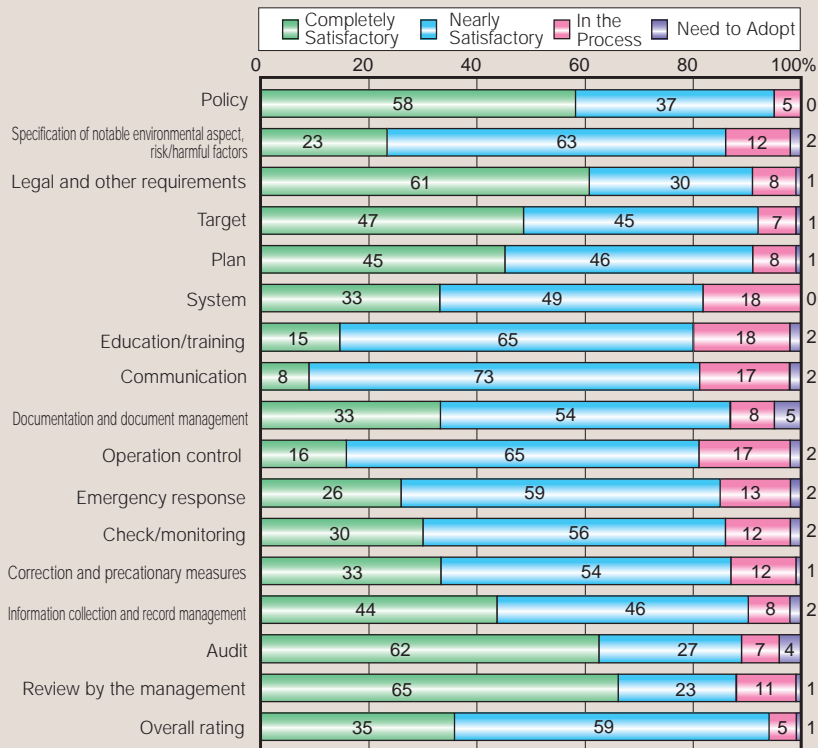


### Trend in OSHMS Adoption



### Management System

The adoption of management Systems such as ISO14001, ISO9000, OHSAS18001 is advancing, and is reaching a level that is almost completely satisfactory. Further, companies whose policies state "nearly satisfactory" have increased 18 points from the previous year, and on the over-all, companies that are "in the process" or "need to adopt" are decreasing, and companies that have "nearly satisfactory" are increasing. Training and Education, Communication, Operational management have also been improved as compared to the previous year, however, evaluations of "nearly satisfactory" are still few, and the issue of raising this level remains.



# JRCC Program of Activities and Progress Status

In 2005, the JRCC has prepared its new mid-term plan, and has established the following policies and placed focus on the key issues below:

## JRCC Policies

To strive for the dissemination of the Responsible Care Global Charter in cooperation with the JCIA, in accordance with the new "JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions"

### Key Issues of the JRCC mid-term plan

- Further enhancement and promotion of product stewardship
  - Promotion of continuous improvement and dissemination of Responsible Care activities
  - Fullfillment of accountability by improvement of verification activities
  - Further recognition of Responsible Care activities by Society
  - Promotion of capacity building in ASEAN countries
  - Enhancement of the functions of JRCC Management System
- Capacity building: support to improve capabilities on Responsible Care, etc.

### FY2005 Program of Activities / Progress Status and FY2006 Implementation Plan

	FY2005 Program of Activities	FY2005 Progress Status	FY2006 Implementation Plan
<b>Information Disclosure</b>	<ul style="list-style-type: none"> <li>• Preparation of Report and Publication</li> </ul>	<ul style="list-style-type: none"> <li>• Prepared report</li> <li>• Conducted report briefing in Tokyo, Osaka</li> <li>• Issued Environmental Report to all 73 member companies</li> </ul>	<ul style="list-style-type: none"> <li>• Preparation of Report and Publication</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>• Continuation of Existing Dialogues (region, community)</li> <li>• Conduct Consumer Dialogue, Student Dialogue</li> <li>• Continuous conduct of Risk Communication Training</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted regional dialogues in 6 areas</li> <li>• Conducted 2nd Risk Communication Training</li> </ul>	<ul style="list-style-type: none"> <li>• Continuation of Existing Dialogues(region, community)</li> <li>• Conduct Consumer Dialogue, Student Dialogue</li> <li>• Continuous conduct of Risk Communication Training</li> </ul>
<b>Dissemination of Responsible Care Activities</b>	<ul style="list-style-type: none"> <li>• Dissemination of the Global Charter</li> <li>• Compilation of RC public information DVD</li> </ul>	<ul style="list-style-type: none"> <li>• Revised the new "JCIA's Guiding Principles Principles for Improvement of Environmental, Health and Safety Conditions" reflecting the concepts of the Global Charter</li> <li>• Compiled RC public information DVD, widely distributed and used</li> </ul>	<ul style="list-style-type: none"> <li>• Actively promote member group registration</li> </ul>
<b>International Activities</b>	<ul style="list-style-type: none"> <li>• Conduct RCLG Tokyo Meeting</li> <li>• Active participation in ICCA/RCLG Activities</li> <li>• Participate in APRC Philippines</li> <li>• Support Asia</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted RCLG Tokyo Meeting</li> <li>• Participated in APRCC Philippines</li> <li>• Implemented Asian Support in Vietnam</li> </ul>	<ul style="list-style-type: none"> <li>• Participate in RCLG Chile Meeting</li> <li>• Participate in India Chem 2006</li> <li>• Support Asia</li> </ul>
<b>Chemicals and Product Safety</b>	<ul style="list-style-type: none"> <li>• Product Stewardship Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Initiated Product Stewardship WG</li> </ul>	<ul style="list-style-type: none"> <li>• Further promote and strengthen product stewardship</li> </ul>
<b>Support of Members' Responsible Care Activities</b>	<ul style="list-style-type: none"> <li>• Hold 10th anniversary celebration</li> <li>• Conduct Socials and Study Groups</li> </ul>	<ul style="list-style-type: none"> <li>• Held 10th Anniversary Symposium</li> <li>• Conducted Member Socials in Osaka</li> <li>• Conducted 2nd Study Group in Tokyo</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct Socials and Study Groups</li> <li>• Consider Awards System and Implement</li> </ul>
<b>Responsible Care Verification</b>	<ul style="list-style-type: none"> <li>• Increase the number of Verifications</li> <li>• Improve credibility of Responsible Care Activities through Verification</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted Verification in 15 companies (2 companies increased)</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the number of Verifications</li> <li>• Enhance verification details</li> </ul>

## Trends in Members' Responsible Care Activities

Based on the implementation plans/reports of the JRCC member companies, the trend in their recent activities are as follows:

New Endeavours

GHS, Asbestos Problem Solving, Risk Assessments in compliance with revisions in the Industrial Safety and Health Law, Enhancement of Risk Management/Compliance, Compliance with revisions of the High Pressure Gas Process Safety Law

Endeavours Attracting More Members

Adoption of OSHMS, Limiting CO<sub>2</sub> Emission, Zero Emission of Wastes, Green Procurement, Compliance with VOC Regulations, Participation in HPV Program, Third-Party Verification, EU REACH, Adoption/preparation/implementation of Container Yellow Card



# About the Responsible Care Report 2006

This report was prepared as a summary of the individual activities of the JRCC member companies as well as overall JRCC's activities.

The activities were quantitatively presented by using the performance data submitted by the member companies, while they were qualitatively presented by using the member companies' responses to the questionnaire survey and 2005 Responsible Care Implementation Report/Plan.

This is the 11th publication since 1996.

## Topics

### • Establishment of the Global Charter and the revision of the JCIA's Guiding Principles

The Responsible Care Global Charter, which was approved at the JRCC Assembly in May 2005, was put into practice. "The JCIA's Guiding Principles for Improvement of Environmental, Health and Safety Conditions" was revised in line with the intent of the Global Charter.

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### • JRCC mid-term plan (fiscal 2006-2008)

A new mid-term plan was developed in fiscal 2005 and the important issues were defined to promote the related activities. A new working group was organized to cope with one of the issues, further enhancement/promotion of product stewardship (activity for protection of environment, safety and health by monitoring the whole lifecycles of chemical substances).

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### • The final disposal amount of industrial waste remained unchanged

The amount of final disposal of the industrial waste generated by the member companies in fiscal 2005 was about 381,000 tons representing an increase by 47,000 tons from fiscal 2004 although the figure indicated a 77% decrease from fiscal 1990.

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### • Steady reduction of specific energy consumption to 86% of 1990 level

The chemical industry has set a goal of "reducing specific energy consumption to 90% of 1990 level by 2010." In fiscal 2005, the member companies actually achieved the goal by reducing it to 86% of 1990 level.

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### • New attempts to reduce VOCs

The JRCC has been involved in the voluntary attempts to reduce emission of chemical substances by introducing the system of Pollutant Release and Transfer Register (PRTR) and controlling toxic air pollutant. Since fiscal 2005, the JRCC has made efforts to reduce emission of volatile organic compounds (VOCs) including the new control substances.

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### • Increasing tendency of investment in the environmental protection and safety

In fiscal 2005, the total investment in the environmental measures was 89 billion yen and its ratio to the sales amount was 0.46%. These figures were the highest ever. The total investment in process safety/disaster prevention measures was 58 billion yen and its ratio to the sales amount was 0.32%. These figures also hit a record high.

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### • RCLG Tokyo meeting

The meeting of Responsible Care Leadership Group (RCLG), which was organized to promote the Responsible Care activities by 52 countries in the world, was held in Japan in 2005.

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### • Promotion of capacity building

In order to disseminate Responsible Care in ASEAN region, the JRCC has promoted the capacity building activities for human resource development and capability improvement by holding seminars there.

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### • JRCC's 10th celebration

The JRCC marked its 10th anniversary in April 2005. At this turning point, the JRCC held the memorial lecture meeting. The JRCC also reflected its past activities and stored the data about its achievements and present conditions on a DVD.

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### • Responsible Care verification: 15 companies undertook in fiscal 2005

In fiscal 2005, a total of 15 companies undertook the verification, representing an increase of two companies from the preceding year.

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### • Opinions from experts

Mr. Kikuji Yamamoto, Representative of Union Institute for Policy Development, Japanese Federation of Energy and Chemistry Workers Unions, and Dr. Akemi Ori, Assistant Professor of Kanto Gakuin University, commented on Responsible Care activities.

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# Environmental Protection Industrial Wastes Reduction

## Reduction Program

Based on the Industrial Wastes Emission/Disposal Status Survey conducted by the Ministry of the Environment (2004 Performance), the reduction of final disposed volume this past few years has extended the remaining life span of the national industrial waste final disposal site by 6.1 years. However, it doesn't change the fact that it is still important for the creation of a recycling society to further promote the reduction of industrial wastes. In the JCIA, in compliance with the Voluntary Environmental Action Plan of the Japan Keidanren, has taken on the target "88% Reduction of Final Disposed Volume from the 1990 level by the year 2010." Further, in 2004, the final disposed volume dis-

posed by the Chemical Industry accounts for approximately 7% of that of all industries.

Regarding industrial waste reduction, the JRCC from the onset has established voluntary targets for its members, and defined standards that include annual and long-term targets in its activity development. Members have each formulated their own reduction programs working towards the fulfillment of these targets, employee awareness activities such as company projects, establishment of promoting organizations, kick-off announcements, promotion of complete sorting of wastes, etc. have in general promoted waste management activities such as reduce, reuse and recycle.

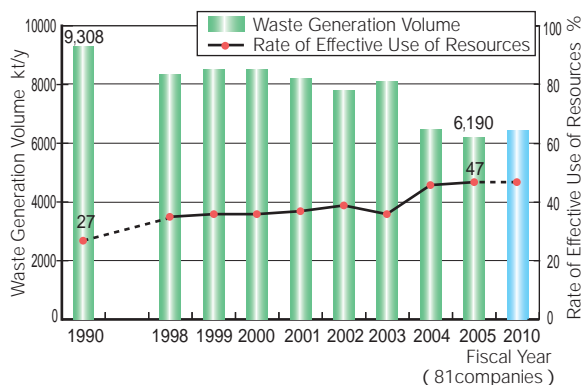
## Status and Programs

### Reduction and Effective Use of Resources

Detailed review of the manufacturing process and equipment improvement are being implemented as measures to reduce the generation of wastes. Specifically, reduction of container wastes by re-using material containers, volume reduction by condensation of waste liquids, reduction of generated sludge by introducing new activated sludge treatment facilities. The industrial waste volume in 2005 was approximately a 33% reduction of the 1990 level, and an approximately 4.4% of the 2004 level.

Further, members actively engage in recycling inorganic sludge into raw material for cement, reusing waste alkali or acids, recovery through waste solvent distillation, solid fuels out of waste plastics, chemical recycling, thermal recycling (heat recovery) such that if effective use of resources (volume of resources effectively used vs generated waste volume) in 1990 was 27%, in 2005 it was 47%.

### Industrial Waste Generation and Rate of Effective Use of Resources



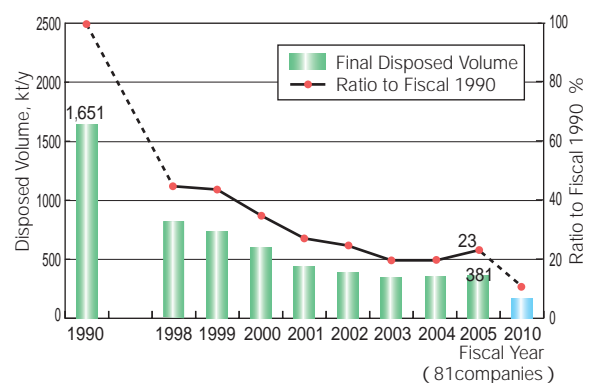
\* Based on the Law on Promoting Effective Use of Resources, the volume of sludge shall be computed after drying.

### Final Disposed Volume

The final disposed volume of members in 2005 was approximately 381,000 tons, 47,000 tons more than in 2004, but a staggering 77% reduction from 1990. The final disposed volume for 2010 is forecast to be approximately 88% of the 1990 level.

Reduction of final disposed volume and appropriate disposal management are strengthened every year. Verification of recovery of industrial waste manifest and local patrolling of the final disposal area, etc. are being done.

### Final Disposed Volume



According to the survey conducted among members, the definition of "Zero-Emission" voluntarily established by members refer to the final disposed volume and burned volume (simple incineration) are zero; the rate of final disposed volume to the generated volume is 0.1-10%, such that roughly 80% of members have set targets if zero emission in their production division.

## Creating a Recycling Society

Other than voluntarily reducing the volumes of waste disposed, companies also accept wastes from the outside, contributing to the creation of a recycling society using its own recycling technologies. Examples of this recycling includes use of waste tires for fuel, use of sludge for raw material in cement, recovery and re-use

of waste styrofoam, re-use of waste plastics, recycling of chlorine and bromine from waste solutions, re-use of waste television glass, chemical recycling of chemical fibers, establishment of recycling system for waste paints.

### Examples of Member Companies' Initiatives

#### ~ Development of recycled products ~

##### Sekisui Plastics Co., Ltd.

Sekisui Plastics started recycling of polystyrene foam 35 years ago. The facilities for recycling polystyrene foam were installed in Ibarakisakai Plant and Tenri Plant. It developed expandable polystyrene beads by using 100% reprocessed materials made from used polystyrene foam and discarded home electric appliance resin and adopting the new production system.

In fiscal 2005, in collaboration with a major home-appliance maker, Sekisui Plastics participated in the Japan Packaging Contest and received Clean Japan Center President's Award.



#### ~ Development of recycled containers ~

##### Lion Corporation

Although utilization of recycled polyethylene terephthalate (PET) resin in production of clear plastic bottles was traditionally regarded as difficult, in cooperation with the container maker, Lion succeeded in developing the technology that enabled its utilization. The recycled PET resin is added to the plastic bottles for kitchen detergent at a ratio of about 30%. The plastic bottles made from 100% recycled PET resin are used for some products. The recycled resin has been made from discarded home electric appliance resin and the measuring spoons for laundry detergent powder, which have been made from such resin, have been commercialized.



#### ~ Development of recycled building materials ~

##### Asahi Kasei Corporation

Discarded lightweight aerated concrete panels are collected for recycling at construction sites and used as the raw materials for panels in Hozumi Plant, Iwakuni Plant and Sakai Plant. In the Kanto area, Asahi Kasei has established the recycling system in cooperation with other companies and has promoted recycling of discarded panels collected at construction sites as the raw materials for cement and the lightweight artificial soil. The amount of recycling achieved by these projects was about 6,000 tons in fiscal 2005.



# Environmental Protection < Energy Conservation and

With the Kyoto Protocol coming into effect, 2005 was a year when great changes occurred as we move towards the prevention of global warming. In the course of the production of the chemicals supplied by the chemical industry, greenhouse gases have been emitted. However, on the other hand, these products have also contributed to the energy conservation initiatives of other industries (automotives and home appliances). The JRCC members exert efforts to control CO<sub>2</sub> emission and to conserve energy by improving energy efficiencies and operations of their equipment and machineries. Further, they actively take on global warming preventive measures by developing and offering energy conserving products, and by reducing greenhouse gases.

## Energy Conservation Targets and Performance

Taking the lead from the Nippon Keidanren Voluntary Environmental Action Plan, the chemical industry has set the target to reduce the unit energy consumption by 2010 to 90% of the fiscal 1990 level. The members have attained this goal ahead of schedule in 2002, with the unit energy consumption steadily improving thereafter, to the point that the 2005 performance achieved 86% of the 1990 level. This improvement in unit energy consumption paved the way for an increase in production by 27% while controlling energy usage by 9%.

## Energy Conservation Measures: Details and Performances

The fiscal 2005 follow up on the "Voluntary Action Plan for Environmental Preservation" of the JCIA shows that energy conservation and CO<sub>2</sub> reduction cases number some 402 cases, with investments amounting to 25.6 billion yen. Reduction in energy, converted to crude oil, amounted to 540,000 kl. Among the cases on energy conservation measures that particularly accounted for a large share, amounting to almost 70% were improvements on equipment/machinery efficiency and operations.

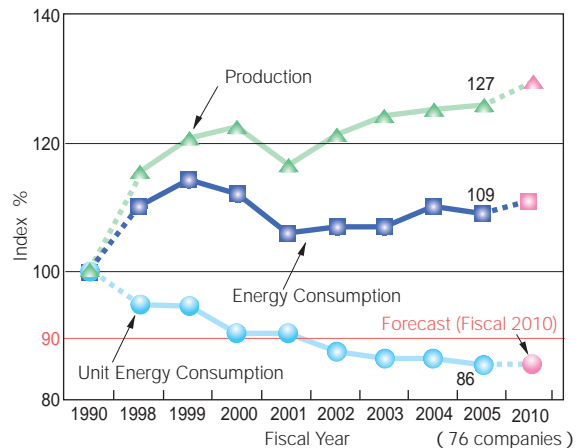
## Efforts to Control CO<sub>2</sub> Emission

The volume of CO<sub>2</sub> emission by the members in fiscal 2005 showed an approximate 1% reduction as compared to the previous year, although comparing it to the 1990 level, it increased by 9.6%. Analysis shows that the factors for this are as follows:

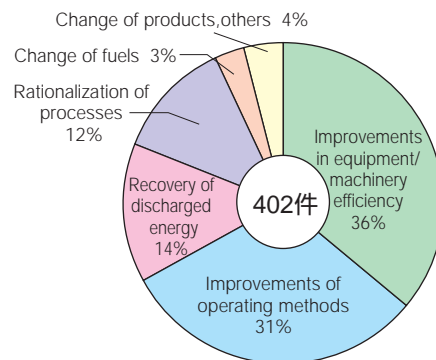
	FY2005	FY 2004
• Portion caused by increase in production volume	26.8%	24.7%
• Efforts of Chemical Industry (reduction from energy conservation)	17.4%	14.8%
• Changes from CO <sub>2</sub> emission coefficient in fuel, power	0.2%	1.3%
(Total)	9.6%	11.2%

## Trends and Forecasts of Unit Energy Consumption

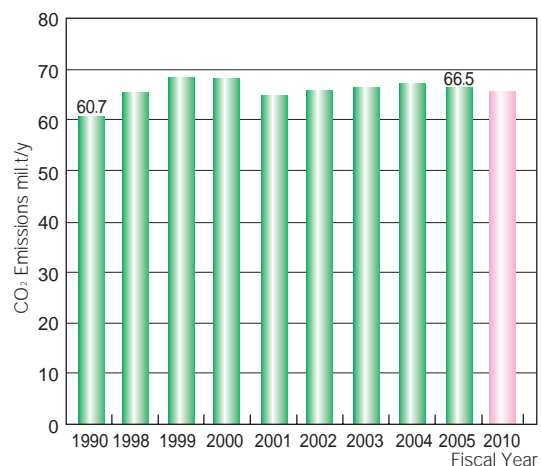
Energy Usage, Production (assuming FY1990 index is 100)



## Examples of Energy Conservation



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



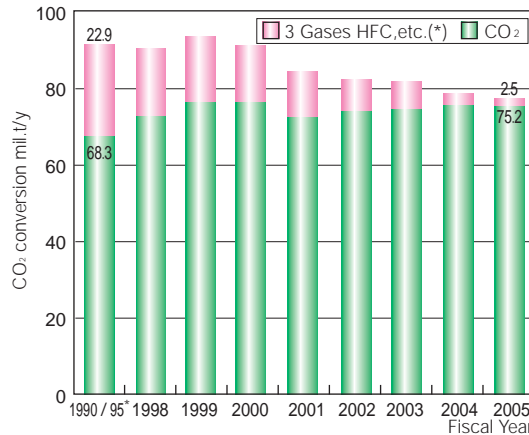
# Global Warming Preventive Measures >

## Reduction in Emissions of Greenhouse Gases

The JCIA has established a voluntary action plan regarding 3 gases such as HFC, and is working for the reduction of their emission volumes. The emission volume of fiscal 2005, is greatly reduced at 11% of the 1995 baseline. The total greenhouse gases emission volume, including that of CO<sub>2</sub> emission volume (energy derived), when converted to CO<sub>2</sub>, shows a reduction of 15% as compared to baseline year, and since 1999 is on a downward trend.

Moreover, according to the 2004 data of the Nippon Keidanren, the CO<sub>2</sub> emission of the chemical industry accounts for 17% of the total CO<sub>2</sub> emission of the manufacturing sector.

### Greenhouse Gases Emissions (JCIA data)



(\*):HFC(hydrofluorocarbon),PFC(perfluorocarbon),SF<sub>6</sub>(sulfur hexafluoride)

## Examples of Member Companies' Initiatives

### Utilization of biomass as the raw material

#### Kansai Paint Co., Ltd.

In collaboration with Sharp Corporation, Kansai Paint has developed the technology to make the plant resin paint from corn without using the conventional fossil material. This paint has been used to coat the stand of LCD TV set. Because this paint is made from the raw material derived from biomass, CO<sub>2</sub> resulting from combustion is fixed/circulated in the plant through the process of photosynthesis and produces no contribution to increase in CO<sub>2</sub> in the global air. Therefore, use of this earth-friendly paint is regarded as so-called carbon neutral.

#### Toray Industries Inc.

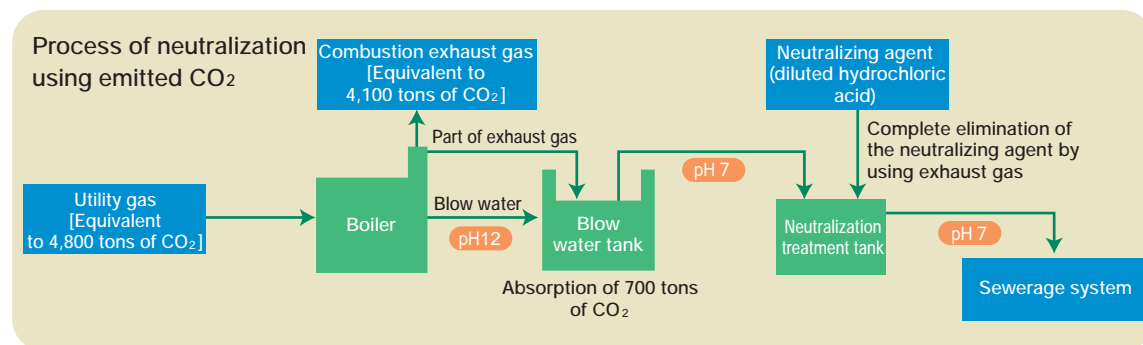
In collaboration with Fujitsu Limited and Fujitsu Laboratories Ltd., Toray developed plant plastic by using corn as a raw material. Such plant plastic has been used as the material for laptops. Compared with the conventional petroleum resin, this plant plastic contributes more effectively to reduction of CO<sub>2</sub> emission volume (about 15% reduction) throughout the lifecycle from production to consumption because natural materials account for about 50% of the materials used.

### Utilization of CO<sub>2</sub> gas for neutralization

#### Sekisui Chemical Co., Ltd.

Special attention has been directed to the property of CO<sub>2</sub> contained in the boiler combustion exhaust that it is acidified after dissolution in water. In Ritto Plant, Shiga Prefecture, this property has been utilized to develop the new system for neutralization of

strong alkaline boiler wastewater and the system has been practically introduced in the treatment process. This technology has enabled reduction of CO<sub>2</sub> gas emitted in the air by 700 tons a year and hydrochloric acid has rarely been used in the process of neutralization.



# Environmental Protection

## <Chemicals Emission Reduction>

The JRCC has been involved in the voluntary projects to reduce emissions of chemical substances. Since fiscal 2005, the JRCC has also promoted the projects to reduce emissions of volatile organic compounds (VOCs).

### Introduction of the system of Pollutant Release and Transfer Register (PRTR)

In 1992, the Japan Chemical Industry Association (JCIA) investigated PRTR system in foreign countries and started to conduct a pilot study on 13 substances in Japan. In 1994, the JCIA established the guidelines for investigation and the instructions for estimation and began the practical investigation. The results were announced through the Ministry of Economy, Trade and Industry. Afterward, the number of substances subjected to the investigation were increased gradually and reached 284 in 1998. Since 2000, a total of 480 substances including 354 substances specified by the PRTR Law have been investigated.

The figures below show the JRCC member companies' emissions of the substances specified by the PRTR Law and those subjected to JCIA's voluntary investigation during the period from fiscal 2000 to 2005.

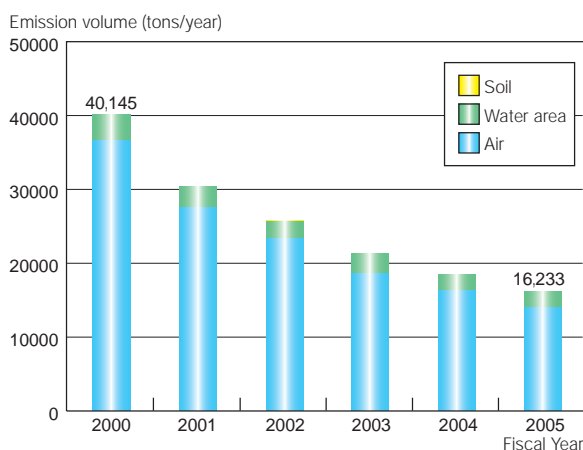
The total emission of the 354 substances specified by

the PRTR Law was 16,233 tons in fiscal 2005 representing a 60% reduction from 2000 level. The emission to the air, water area and soil accounted for 85%, 15% and less than 0.1% respectively.

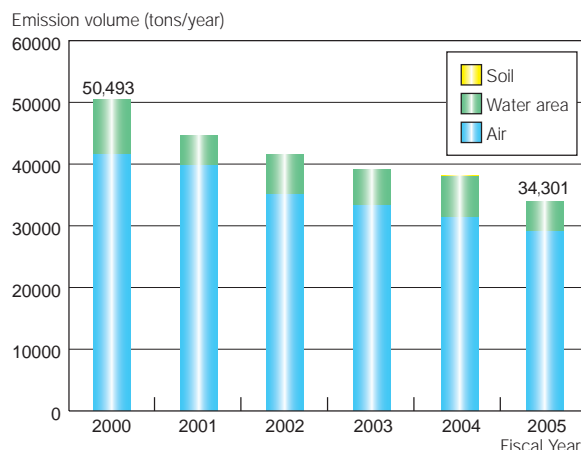
The total emission of the substances subjected to JCIA's voluntary investigation (126 substances: those specified by the law were excluded from 480 substances) was 34,301 tons in fiscal 2005 representing a 32% reduction from 2000 level. The emission to the air, water area and soil accounted for 85%, 15% and 0.13% respectively.

All the member companies consider the results of investigation and make efforts to achieve further reduction of emission in the environment by actively promoting various programs such as prevention of leakage of hazardous substances, improvement of recovery/recycling and introduction of alternative substances.

#### Emission of the substances specified by PRTR Law



#### Emission of the substances subjected to the voluntary investigation



Data of major 10 substances appear in the following website:  
<http://www.nikkakyo.org/organizations/jrcc/report/2006/data.html>

#### The PRTR Law (Law concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management)

The PRTR Law requires the industrial sectors to gather the information about the chemical substances that may be harmful to human health or ecological system. More specifically, the law requests the industrial sectors to collect the data on the volume of emission of such substances from their plants into the environment (air, water, soil) and the volume of transfer of such substances contained in the industrial waste from their plants to other places and submit these data to the regulatory authority. On the basis of submitted data and estimations, the regulatory authority compiles the volume of emission/transfer and announces the results.



## Efforts to Reduce Toxic Air Pollutant

The Japan Chemical Industry Association (JCIA) carried out the voluntary management program for two terms from fiscal 1995 and made efforts to reduce 12 substances designated as the priority target substances. In the second program which started in fiscal 2001, the total volume of the 12 substances was reduced from 10,482 tons in the standard year of 1999 to 4,080 tons according to the performance in fiscal

2003, representing a high reduction rate of 61%, although the mean target reduction rate of the 12 substances was set to 30% in fiscal 2003.

Since fiscal 2004, continuous efforts have been made to reduce the 12 priority target substances within the framework of PRTR activities. In fiscal 2005, the total volume of the 12 substances was 3,595 tons and more efforts have been directed to further reduction of them.

### 12 priority target substances

Central Environment Council designated 22 substances as "priority target substances" among the toxic air pollutants that might adversely affect health as a result of long-term consumption even if their concentrations were low. Of these, the following 12 substances were selected according to the following criteria: carcinogenic possibility, large amount of production/import (exceeding the specified level) and being detected in the environment.

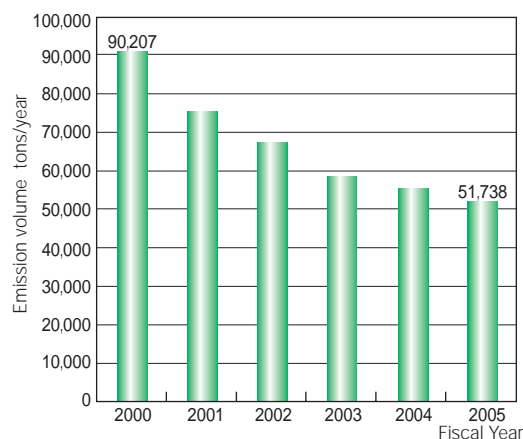
Acrylonitrile, Acetaldehyde, Ethylene oxide, Vinyl chloride monomer,  
Chloroform, 1,2-dichloroethane, Dichloromethane, Tetrachloroethylene,  
Trichloroethylene, 1,3-butadiene, Benzene, Formaldehyde

## Efforts to Reduce Volatile Organic Compounds (VOCs)

In April 2006, Air Pollution Control Law was revised and VOC control was incorporated in the law to prevent the adverse effects of photochemical oxidant and achieve the environmental standards of suspended particulate matters (SPMs). The framework of "best mix of legal control and industrial sectors' voluntary efforts" was adopted as a new attempt in the environmental legal system. Accordingly, the sectors subjected to the legal control attempt to reduce VOCs while the sectors also attempt to introduce VOC reduction measures at their voluntary discretion. The JCIA added chain hydrocarbon derived from petroleum products to the list of voluntary control substances, which had been designated as control substances, and makes efforts to reduce VOC emission.

The Ministry of the Environment aims to reduce VOC emission throughout the country by about 30% in fiscal 2010 compared with the level of the standard year of 2000. Considering its member companies' voluntary efforts, the JCIA accumulates their numerical targets and estimates that it can reduce VOC emission by 51% in fiscal 2010 compared with 2000 level. According to the result of investigation in fiscal 2005, the JCIA member companies emitted a total of 51,738 tons of VOC and achieved a 43% reduction compared with the level of the standard year. Introduction of the new framework in Air Pollution Control Law resulted in emphasis on the industrial sectors' voluntary efforts and their responsibility. In this situation, continuous efforts are indispensable to achieve further reduction of VOC emission and disclose achieved results.

### VOC emission



### Volatile Organic Compounds (VOCs)

VOC is the generic term used to refer to organic compounds that are volatile and turns to gaseous body in the air. There are about 200 substances classified as VOC such as toluene, xylene, ethyl acetate, methanol and dichloromethane.

# Environmental Protection < Chemicals Emission Reduction >

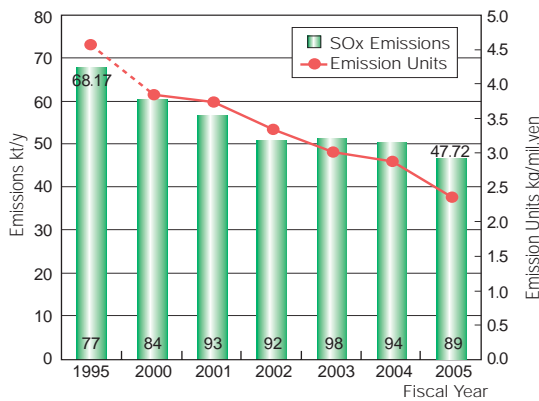
Since the 1970's, domestic chemical companies from the perspective of pollution prevention have greatly reduced the emission of air and water pollutants. Since 1995, the JRCC member companies have established voluntary management standards more stringent than what is provided by the law. Complying with the agreement with local government, these companies are working on reducing emissions and maintaining the standard values.

The main environmental load emitted to air and water of member companies are summarized in the graphs below. The total emissions is greatly affected by the

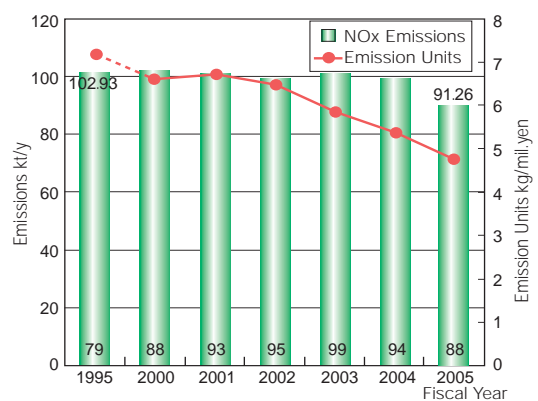
production volume and the data provided by the companies, the index to be used for to it has been identified that emission unit is the ratio of emission to sales. This unit has undoubtedly been improved, due to the efforts of member companies.

Since fiscal 2001, members have initiated to reduce the emission of total nitrogen and total phosphate as an effort to reduce environmental load emitted to water. Fiscal 2005, as compared to fiscal 2001, total nitrogen has been reduced by 3,000 tons and total phosphate by 220 tons.

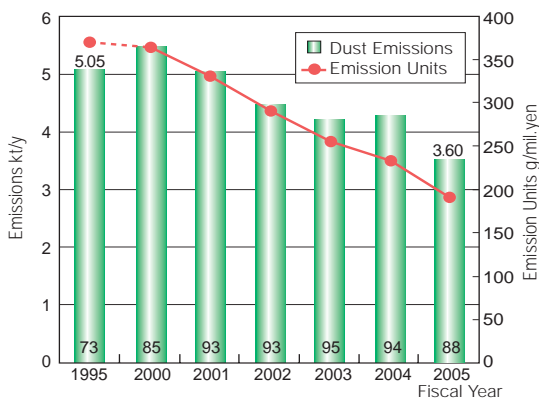
### SOx Emissions



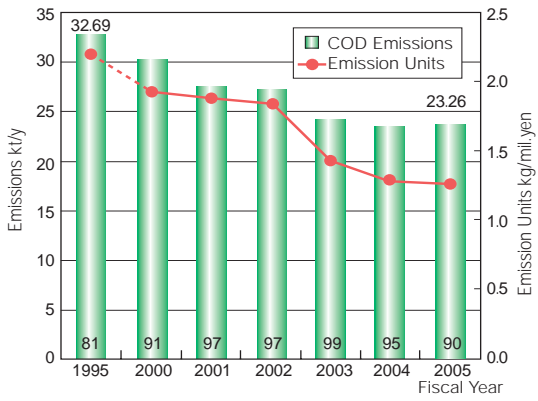
### NOx Emissions



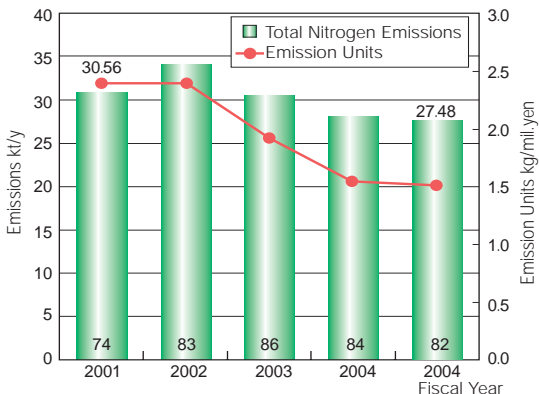
### Dust Emissions



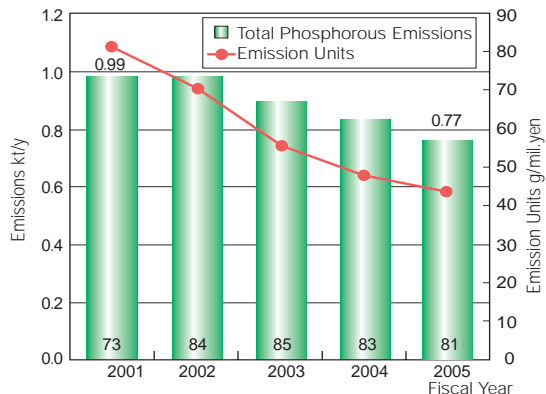
### COD Emissions



### Total Nitrogen Emissions



### Total Phosphorous Emissions



The figure in the bar graph indicates the number of companies that submitted their data.

Emission Unit: Since the businesses of members are varied that the production unit cannot be indicated as one, the index is made to show per sales (million yen).

## Initiatives on Soil, Groundwater Contamination

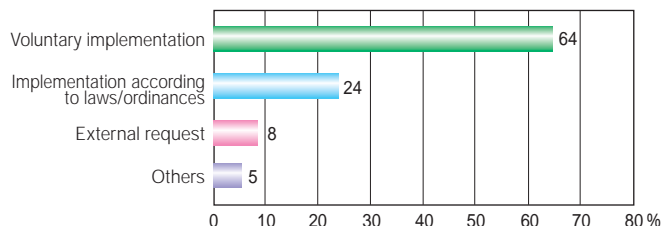
The JRCC member companies promote the voluntary investigations/countermeasures according to the Soil Contamination Countermeasures Law enforced in 2003.

Of the 90 companies who responded to the questionnaire survey, 54 (60%) investigated contamination of soil/groundwater at 112 sites in fiscal 2005. Twenty-nine of 54 companies detected contamination that exceeded the environmental standards at 48 sites (43%).

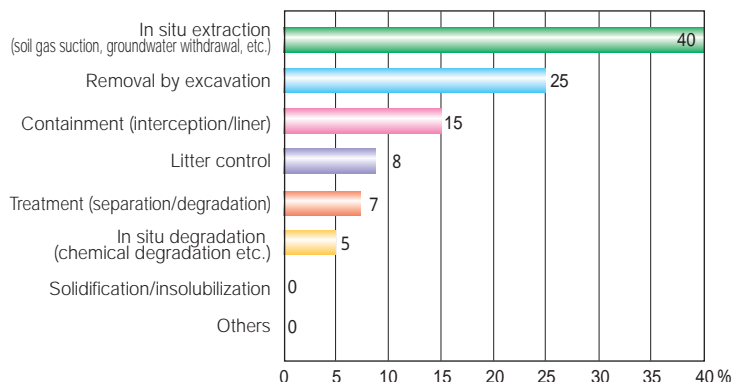
The reasons for implementation of investigation were also asked in the survey. Voluntary implementation of investigation was ranked in the first place and accounted for 64%, while implementation of investigation according to the law or ordinance accounted for 24%. The substances other than those specified by the Soil Contamination Countermeasures Law were also examined in 22 investigations.

In fiscal 2005, 40 companies carried out the contamination countermeasures at 62 sites including the sites where contamination had been detected before.

### Reasons for implementation of investigation (Multiple answers allowed)



### Countermeasures for contamination (Multiple answers allowed)



## PCB

Of the 94 companies that responded to the questionnaire survey, 82 (87%) retain/control PCB waste (PCB waste or discarded PCB containing devices). In fiscal 2005, six member companies implemented PCB waste

treatment.

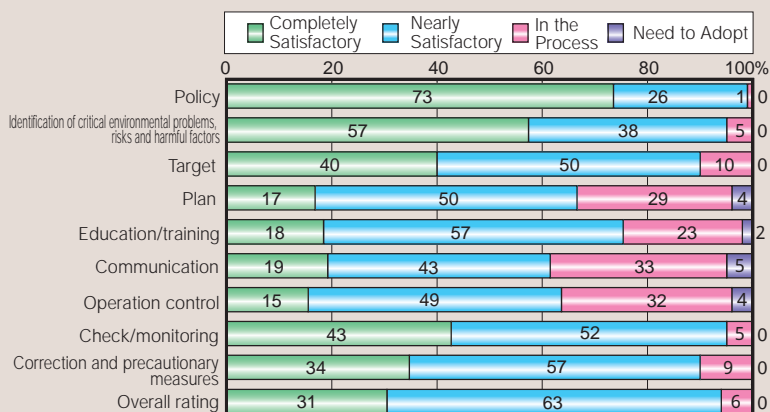
As the Japanese Government fully launches the PCB waste treatment project, it seems that more member companies will conduct PCB waste treatment.

### Members' Self-Assessment

#### Environmental protection

The overall trend is almost similar to the trend of the previous year. Concerning the items excluding "operation control" and "correction and precautionary measures," however, the percentages of "in the process" and "need to adopt" have decreased. These results indicate overall improvement.

Regarding "operation control" and "correction and precautionary measures" the percentage of "completely satisfactory" has decreased, while the percentage of "in the process" has increased. These are future themes.



## Examples of member companies' environmental protection activities

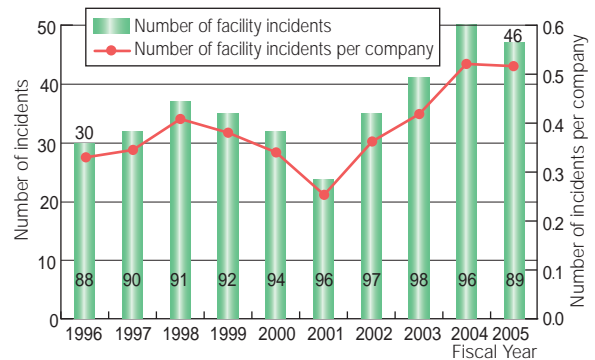
<b>Environmental efficiency indicators</b>	<p><b>Sumitomo Chemical Co., Ltd.</b> Sumitomo Chemical uses the technique of Environmental Policy Priorities Index for Japan (JEPIX) to integrate the environmental loads into the single indicator (eco-points). It takes the practical and multidimensional approaches to verify the effectiveness of this single indicator as the index of business strategy. In fiscal 2005, its effectiveness was also verified in the group companies and the environmental efficiency (amount of production per eco-point) and cost efficiency (eco-points per cost) were calculated by using the integrated environmental indicators. In this manner, Sumitomo Chemical attempted to minutely evaluate their relationship with the production efficiency (amount of production per energy consumption).</p> <p>*JEPIX: The single indicator (eco-points) used for integrated evaluation of the influence on the environment Environmental activity rating</p>
<b>Environmental activity rating</b>	<p><b>Hitachi Chemical Co., Ltd.</b> Hitachi Chemical has been involved in "GREEN 21" activity which is developed to promote self-rating of environmental preservation activities by Hitachi group companies. "GREEN 21" adopts the system to evaluate all the activities related to environmental preservation and expresses the efforts toward achievement of goals and the degree of achievement by "green points," which is obtained by multiplication by the numerical values corresponding to the levels defined for each item in the category. In this manner, Hitachi Chemical evaluates the whole environmental preservation activities from the objective standpoint and utilizes the results for promotion of environmental management.</p>

# Process Safety and Disaster Prevention

Since establishment of "Coordinating Committee for Industrial Accidents," in 2004, to cope with the increasing tendency of serious disasters in the manufacturing industry, a multiindustry approach has been taken to share the information about accidents and the Government and private sectors have made concerted efforts to prevent accidents. The JRCC member companies regard security and disaster prevention as an important management mission and the top executives actively promote the safety control activities.

The number of facility incidents per member company reached the bottom in fiscal 2001 although it has showed an upward trend immediately following the year. In fiscal 2005, the number remained unchanged compared with that in the preceding year.

## Facility incidents (explosion, fire, leakage, etc.)



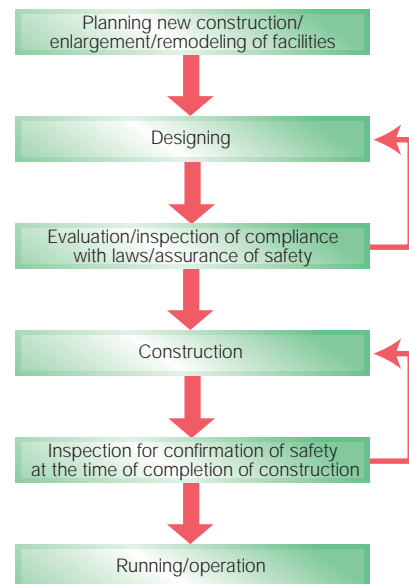
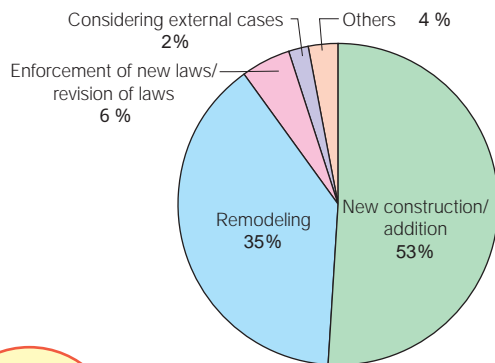
The figure in the bar graph indicates the number of companies that submitted their data.

## Prior Facility Evaluation and Management

According to the results of questionnaire survey, more than 90% of member companies conduct the prior facility evaluation. The member companies were asked why they conducted the evaluation. New construction/addition/remodeling of facilities accounted for about 90% of the reasons for conducting the evaluation.

As illustrated in the flow chart, most of the member companies take the multiple approaches and strictly check their facilities in advance, focusing on the countermeasures for elimination/reduction of risks. The revised Industrial Safety and Health Law requires the industrial sectors to make efforts to conduct the risk assessment and introduce the measures for improvement according to the assessment results. In this situation, the member companies attempt to achieve further improvement.

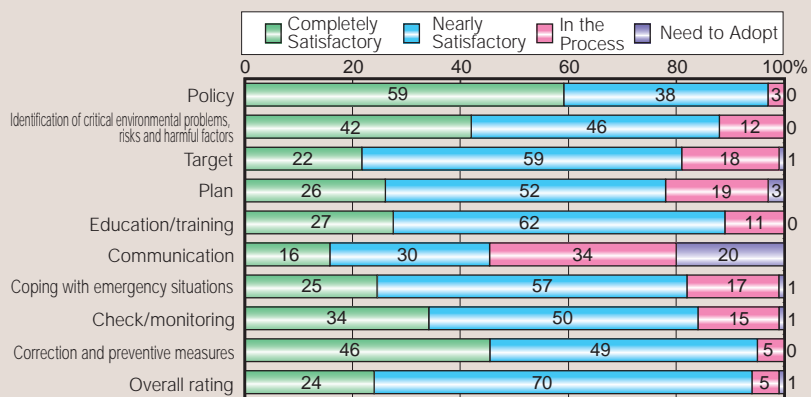
## Reasons for conducting prior facility evaluation



## Members' Self-Assessment

### Process safety and disaster prevention

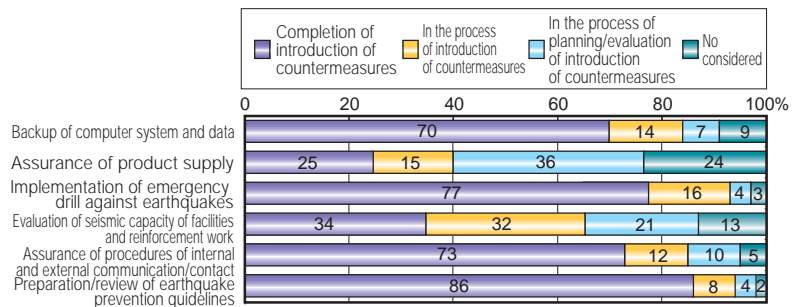
Generally, the percentage of "completely satisfactory" or "nearly satisfactory" was higher compared with the data obtained in the previous year. Regarding "communication," more than half of the companies selected "in the process" or "need to adopt."



## Countermeasures for Large-scale Earthquakes

The special measures law for promotion of the countermeasures for earthquake disasters including Tonankai/Nankai Earthquakes and ocean-trench earthquakes around Japan trench/Kuril trench was enforced and the industrial sectors are required to take sufficient countermeasures for earthquakes. According to the member companies' responses to the questionnaire survey, they make more efforts to steadily enhance earthquake prevention countermeasures than they did last year. The member companies were asked about the following countermeasures: backup of computer system and data, preparation/review of earthquake prevention guidelines, implementation of emergency drills against earthquakes and assurance of procedures of internal and external communication/contact. The companies that progressively took necessary countermeasures including those that completed introduction of all these countermeasures and those that were in the process of introduction accounted for more than 80%. Regarding assurance of product supply, the companies that were in the process of planning/evaluation accounted for 60%. This is a future theme.

### Responses to the questionnaire on earthquake countermeasures in fiscal 2005



## Emergency Drill

The member companies regularly conduct various emergency drills such as report contact drill, disaster prevention drill and emergency measure drill.

### Drill for coping with spilled chemical substances

Drills for coping with emergency conditions including accidental leakage/spill of chemical substances are regularly performed.



### Drill for rescuing injured persons

Drills for rescuing the persons injured in the unexpected disasters and accidents are performed.

### Comprehensive disaster prevention drill in a complex

In addition to fire fighting drills, a comprehensive disaster prevention drill consisting of important measures such as reporting to the departments concerned, blocking roads, controlling secondary disasters and preventing flow of wastewater into the river is regularly performed. Generally, such a drill is performed in cooperation with the local agencies concerned including police and fire departments.





# Occupational Health and Safety

Although the number of labor accidents of whole industry has been decreasing gradually since the peak years of 1970s, about 550,000 workers are still injured in a year. Despite the fact that the number of fatalities in labor accidents has decreased to the levels below 2,000, more than 1,500 workers still die in such accidents in a year. Prevention of labor accidents is a major industry-wide commitment to be fulfilled. Each JRCC member company makes continuous efforts to improve its safety level aiming to achieve complete elimination of occupational accidents.

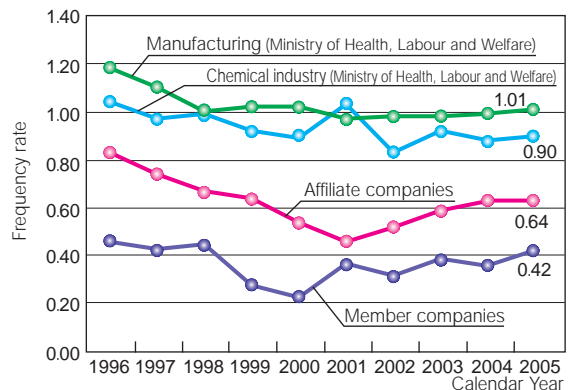
The frequency rates of the accidents in the JRCC member companies and their affiliate companies are lower than the frequency rates of the accidents in the whole manufacturing industry and chemical industry. After 2001, however, the frequency rates in the member companies and their affiliate companies showed leveling-off which was followed by a slightly upward trend.

The severity rate (or how serious an accident is) is different from year to year although, in 2005, it slightly increased from the level of the previous year. On the other hand, the severity rate was at an all-time low in the affiliate companies, which suggested reduction of serious disasters in such companies.

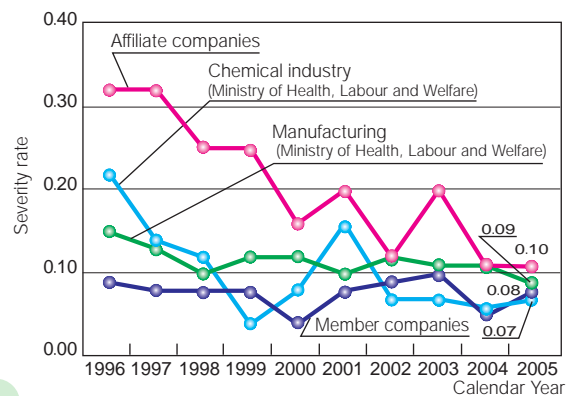
The number of fatalities in labor accidents remained at low levels for these years although fatal accidents have not completely eliminated.

Each member company is required to devote considerable efforts to achieve further improvement aiming at zero accidents.

## Transition of Frequency Rate



## Transition of Severity Rate



## Number of fatalities in labor accidents

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Member companies	3	4	3	3	2	1	1	2	1	1
Affiliate companies	6	5	9	4	1	3	1	3	2	2
Chemical industry (Ministry of Health, Labour and Welfare)	39	34	30	28	26	24	22	25	22	22
Manufacturing (Ministry of Health, Labour and Welfare)	405	351	305	344	323	326	275	293	293	256

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

$$\text{Severity Rates} = \frac{\text{lost days}}{\text{Total work hours (per one thousand hours)}}$$

## Countermeasures for Asbestos Problems

The JCIA organized an expert assessment group to promote the activities for total control of use of asbestos. The sealing materials containing asbestos including joint sheet are widely used in chemical plants. In this situation, asbestos can not be easily abolished because of safety problems. Practical introduction of total ban on use of asbestos is postponed for some time before the

quality and safety of alternative materials are sufficiently evaluated. As soon as the JCIA collects detailed data on alternative materials and confirms their quality and safety, it discloses the collected information and promotes the activities for total control of use of asbestos in the chemical industry.



# Occupational Safety and Health <Safety Awards/Symposiums>

Appropriate management of health and safety of workers is also one of the important Responsible Care activities.

In 2000, in collaboration with the JCIA, the JRCC started to "honor the companies that devoted special efforts to assure safety" and hold the "safety symposium" in which the winners reported their activities for assurance of safety.

## Safety Awards/Symposium

As a part of voluntary campaign for promotion of process safety and health in the chemical industry, in collaboration with the JCIA, the JRCC honors the exemplary companies that develop excellent safety activities. In 2006, the memorial year of the 30th award, eleven companies participated in the award competition. In the safety award meeting (held by the JCIA and the JRCC), the following four companies were selected. The awarding ceremony was held as a part of the JCIA General Assembly in May, 2006.

Safety Award	Mihara Factory, Teijin Limited
Safety Effort Award	Kashima Factory, San-Petro chemicals Co., Ltd. Tsukuba Research Laboratory, Sumitomo Chemical Co., Ltd. Minamata Headquarter, CHISSO CORPORATION

On June 22, 2006, 150 persons participated in the safety symposium in Hatsumeikaikan. The symposium consisted of two parts. In one part, the directors of the four plants/factories who received the awards reported their activities and, in the other part, a panel discussion titled "How to Maintain the Condition without Disasters, Focusing on the Roles of Top Executives" was held.

For details, please visit the JCIA's website or see JRCC News No. 42.

- JCIA's website: (General page) "Environmental Safety" "Safety Assurance Measures" "Safety Symposium"  
[http://www.nikkakyo.org/show\\_category.php3?category\\_id=278&navRow=2](http://www.nikkakyo.org/show_category.php3?category_id=278&navRow=2)
- JRCC News: <http://www.nikkakyo.org/organizations/jrcc/news/no42/g.html>

The activities promoted in Mihara Factory, Teijin Limited, the winner of Safety Award, are explained below.



Because Mihara Factory is a complex, additional efforts are needed to promote safety activities. Management of workplace for assurance of absolute safety( " Zero " ) is regarded as the basic concept of "giving the highest priority to safety." The basic policy of safety activities is their quick implementation based on communication and efforts are made to introduce common safety campaigns.

The common safety activities are promoted in the factory. One of the representative activities is the risk reducing activity by preventing incidents and accidents. The numerical targets are assigned to all the workers. They are given an opportunity to consider safety and make proposals once a month. A simple form is used so that they can make proposals easily. This activity contributes to promotion of communication between the workers and their supervisors.

Another representative activity is the rule compliance activity. The "special safety activity month" is designated and the details of rules and workers' safety activities are reviewed then. All the workers are to frankly and thoroughly discuss whether the rules have any problems and whether the workers act according to the rules. This activity, which is promoted by all the workers, contributes significantly toward forming safety culture.



# Chemicals and Product Safety

As a responsible supplier of chemical products, the JRCC clearly explains the properties of products and their handling procedures and develops the activity to assure/protect safety and health of the persons who handle such products, including its customers, and preserve environment. On the basis of the concept of product stewardship (a manufacturer, who is responsible for its products in their production process and after their shipment, protects/assures health of those who handle them, safety in use and environment throughout their lifecycles), the JRCC organized a working group to extend its activity.

## Trends of Legal Affairs and the JCIA's Measures

**Measures to cope with REACH:** EU introduced a new measure to control chemical substances in 2001. This measure can be outlined by the following three points. 1) The duty of implementation of the risk assessment of existing chemical substances is to be transferred to the industrial sectors. 2) In addition to the manufacturing/importing sectors, the sectors regarded as users are to be responsible for part of risk assessment. 3) Those concerned are to be responsible for implementation of risk assessment, under certain conditions, of the chemicals contained in the products. The JCIA submitted its comment on draft REACH in 2003 and orga-

nized the "Japanese Chemical Companies Council in Europe" in Japan and EU in September 2004 to cope with this regulation.

**Measures to cope with GHS:** A guideline was established to globally integrate the classification and labeling of danger/hazard of chemicals and clearly and accurately provide such important information. In Japan, the Industrial Safety and Health Law was revised and the revised law was enforced in December 2006. Since fiscal 2005, the JCIA has encouraged its member companies to cope with GHS by holding the meetings to explain the contents of revised law in Tokyo and Osaka.

## Investigation/Research on Safety of Chemical Substances

**HPV:** OECD (Organization for Economic Co-operation and Development) has promoted the project to acquire and evaluate the data preferentially on the existing chemical substances whose basic data about toxicity are not sufficiently prepared and which are produced in large quantity (HPV: high production volume chemicals whose annual production is 1,000 tons or over in a country).

**Japan Challenge Program:** In 2005, this industry-government collaboration program was established as a framework to collect the safety information about chemical substances and provide the collected information widely to the public. About 700 substances which are annually produced/imported in Japan in quantity ex-

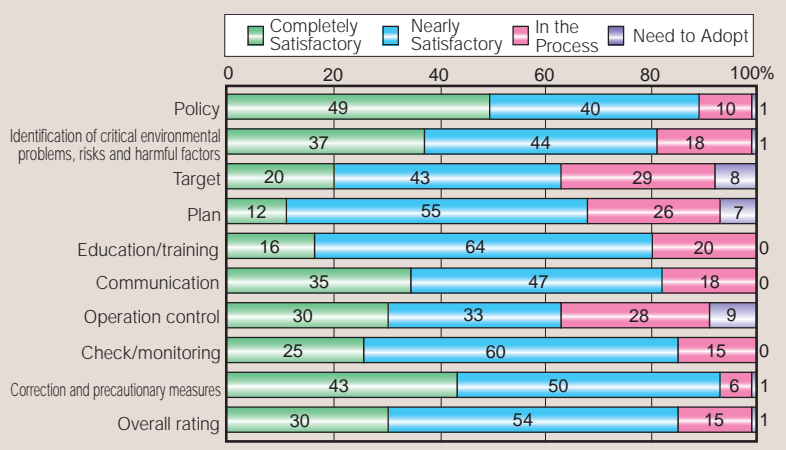
ceeding 1,000 tons are selected as "priority substances for information collection." The safety information is to be collected/provided in line with the overseas similar programs in 2008.

**LRI:** The world chemical industries cooperate to conduct the long-term voluntary researches on the "influences of chemical substances on human health and environment" (LRI: long-range research initiative). The research themes, which are related to the important issues of chemical industry such as "endocrine disruption," "chemical carcinogenesis" and "hypersensitivity," are collected from the public and the effective solutions are sought in this voluntary activity program. For further information, visit the website (<http://www.j-lri.org/>).



### Chemicals and product safety

Regarding "policy" and "correction and precautionary measures," the percentages of "completely satisfactory" increased by 10 and 11 points respectively from the levels of the previous year. These results indicate overall progress of improvement. Regarding "overall rating," the percentage of "completely satisfactory" increased by 13 points. However, the percentages of "in the process" and "need to adopt" showed minimum changes, which suggested the necessity for enhancement of the basic activity level.



## Provision of Product Information

### Preparation and Distribution of Material Safety Data Sheet (MSDS)

MSDS is regarded as an important means of product stewardship because the suppliers of chemical products use MSDS to provide their users with the information necessary for safe handling of chemical products and prevention of accidents. MSDS is revised as necessary when new information about toxicity is obtained or related information is provided by manufacturers.

Although the substances whose MSDS are to be submitted are specified by the PRTR Law, the Industrial Safety and Health Law and the Poisonous and Deleterious Substances Control Law, 89 of 92 JRCC member companies voluntarily issue MSDS of the substances (products) which are not subjected to these laws. This indicates that most of the member companies prepare MSDS of all their products.

When MSDS is revised, the member companies provide the contents of revision for their customers. Generally, the member companies provide such information through their external agencies. The member companies that use such an indirect method accounted for 47%. Those that sent such information directly to their customers accounted for 18%. Thirteen percent of them disclosed the information on their website.

The suppliers of chemical products are to advise their customers to handle such products safely. For this pur-

pose, they are to know how their customers use/process the chemical materials, what commercial products are made from such materials and what products are provided for consumers. According to the responses obtained from 93 member companies, 86% said "we have collected more than 80% of such information" and 11% said "we have collected more than 50% of such information."

### Provision of Information for User Sectors

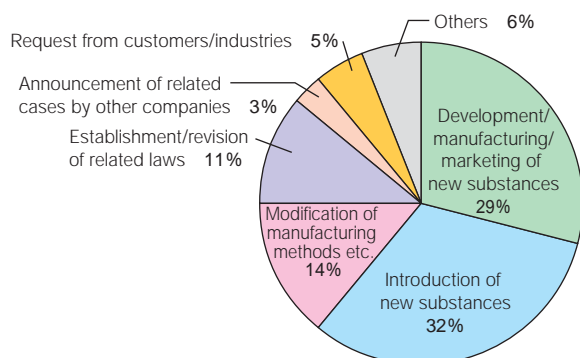
An increasing number of customers recognize the importance of the "green procurement" investigation and request the suppliers to submit the "report on the conditions of management of chemical substances" and the "report on the contents of specified chemical substances in supplied materials." The JCIA organized a working team to discuss the practically effective method for disclosure of information and proposed that the information that a customer needed most was provided by using MSDS and the "sheet of information on the content of specified chemical substance." Currently, this method has been adopted by the member companies. The details are posted on the JCIA's website (<http://www.nikkakyo.org/>). Since 2004, the JCIA has participated in the Japan-U.S.-Europe project to prepare the globally harmonized list of substances for disclosure in the automobile related industry.

## Prior Chemical Substance Safety Assessment

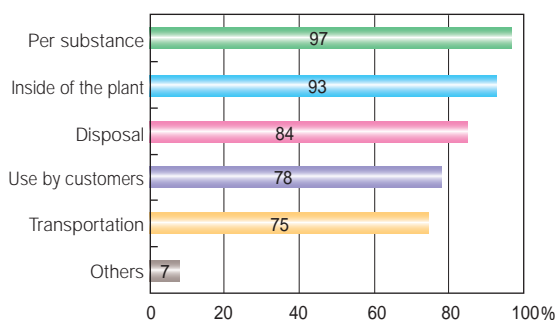
Prior Chemical Substance Safety Assessment is conducted to clarify the safety of chemical substances (explosiveness, inflammability, acute/chronic toxicity) and evaluate their effects on the users' health and environment. Not only new substances but also existing sub-

stances are subjected to this assessment. Because this assessment can be introduced as a measure for coping with emergency situations as well as a measure for risk reduction, 95% of JRCC member companies have their prior assessment standards.

### Reasons for implementation of the prior assessment



### Application of the prior assessment standards (multiple answers allowed)



# Distribution Safety

The JRCC evaluates the influence of chemical products and the transportation facilities to reduce the risks that damage environment and safety in the process of distribution of chemical products. Moreover, in collaboration with transporters, the JRCC makes efforts to prevent accidents and implement the emergency drills so that those concerned with distribution such as plant workers, transporters and contractors can promptly cope with the emergency situations including unexpected leakage during transportation. In addition to these efforts, the JRCC encourages them to prepare/carry Yellow Card.

## Preparation of Yellow Card/ Container Yellow Card

When the chemical products subjected to Poisonous and Deleterious Substances Control Law and the High Pressure Gas Safety Law are transported, the transporters are required to carry the official document of transportation. The JCIA considers the possibilities of unexpected accidents during transportation of the substances other than such controlled substances and encourages its member companies to utilize the emergency contact cards containing the measures to be taken by those concerned including the tank drivers, firefighters and police officers. Because such important measures are printed on a piece of yellow paper, the contact card is called "Yellow Card."

Chemical products may be put in containers for transportation or a large variety of chemical products may be transported simultaneously. In this case, several Yellow Cards may be carried by one transporter. In view of such possibilities, the JCIA prepared a label (Container Yellow Card) to identify the product concerned promptly and accurately and introduce appropriate measures quickly in emergency situations. It encourages those concerned in distribution to paste Container Yellow Cards on the containers of chemical products.

### Carrying of Yellow Cards

The member companies were asked whether they confirmed carrying of Yellow Cards and 91% of 94 respondents answered "yes."

### Implementation of Container Yellow Cards (label type)

Container Yellow Cards were introduced in fiscal 2002. The percentage of the member companies that pasted these labels to the controlled products was increased from 56% in the previous year to 66% this year. These data suggest progressive dissemination of Container Yellow Cards. After introduction of GHS system, these labels are continuously used to provide the important information for the persons who are to cope with the emergency situations.

## Manual for Emergency Situations/ Emergency Contact System/ Drills

The member companies make efforts to establish the around-the-clock emergency contact system and mutual support systems with the fire and police departments and related companies and implement emergency drills so that they can promptly cope with the unexpected accidents and assure safety during transportation.

### (1) Preparation of the manuals for coping with emergency situations/dissemination of such manuals

Ninety-nine percent of the member companies have prepared their own manuals for emergency situations.

### (2) Establishment of around-the-clock contact networks

Ninety-seven percent of the member companies have established their own around-the-clock contact networks.

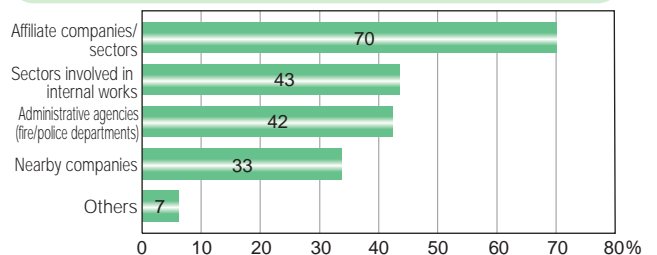
### (3) Implementation of drills for coping with emergency situations

Eighty-eight percent of the member companies have implemented the drills for coping with emergency situations.

## Mutual support system for emergency

Eighty-six percent of the member companies have established their mutual support systems for emergency situations with affiliate companies/plants, the sectors involved in internal works and administrative agencies (fire/police departments). The substances covered by this system are combustible solids/liquids/gases, high-pressure gas, corrosive substances and acute toxic substances.

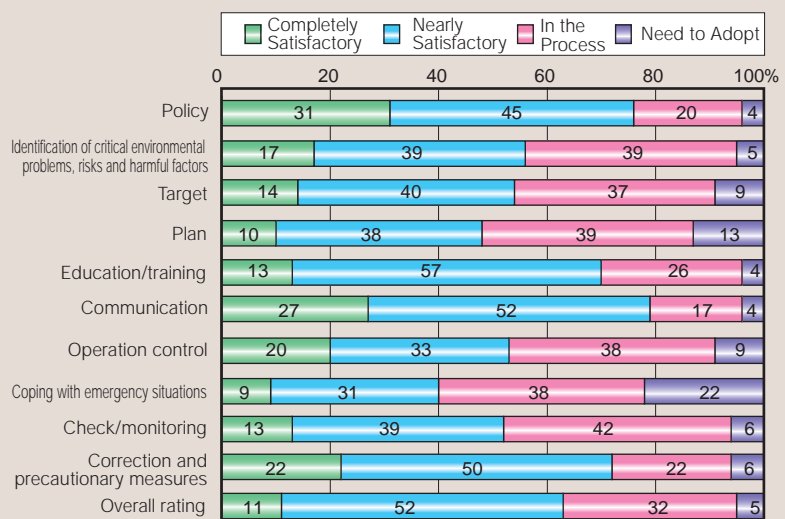
### Sectors/agencies that the member companies support mutually in the event of accident (multiple answers allowed)



### Members' Self-Assessment

## Distribution safety

Regarding "policy," the percentage of "completely satisfactory" increased by six points. Except for this increase, the present results were not remarkably different from those obtained in the preceding year. Concerning "coping with emergency situations," the percentages of "in the process" and "need to adopt" were high. Although each member company makes efforts to improve emergency countermeasures, many of the companies feel that improvement is insufficient.



# Investment in Environmental Protection and Safety

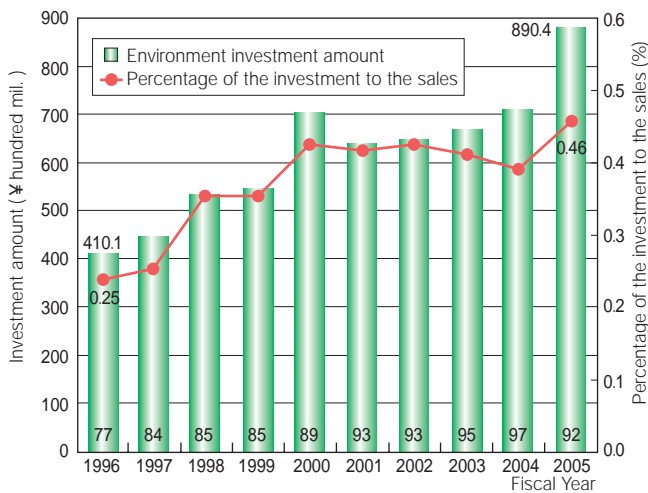
## Investment in Environmental Protection

The JRCC member companies recognize the importance of environmental protection and continue to make a high level of investment in environmental measures. In fiscal 2005, the total investment in environmental measures including addition of new facilities reached about 89 billion yen (26% increase from the previous year). The percentage of the investment to the sales was 0.46%. Both the amount and percentage of invest-

ment were the highest ever.

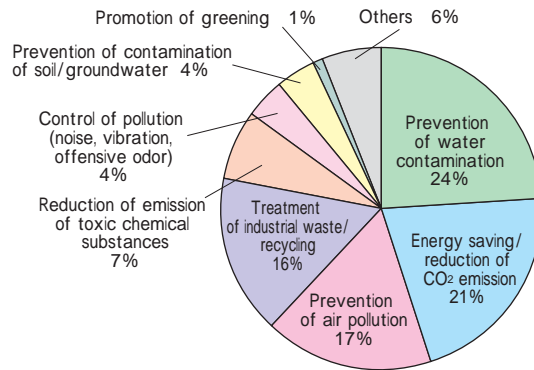
The categories of environmental investment are shown in the figure below and their order was the same as that recorded in fiscal 2004. The countermeasures for prevention of water contamination, those for energy saving/reduction of CO<sub>2</sub> emission, those for prevention of air pollution, those for treatment of industrial waste/recycling and those for reduction of emission of toxic chemical substances accounted for 24%, 21%, 17%, 16% and 7% respectively.

### Investment in environmental measures



The figure in the bar graph indicates the number of companies that submitted their data.

### Categories of the investment in environmental measures in fiscal 2005



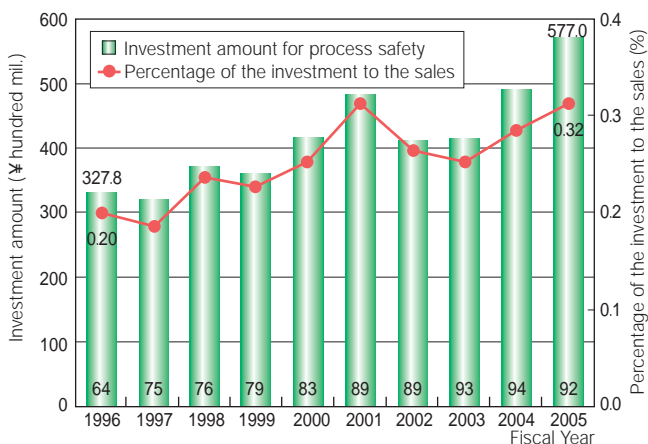
## Investment in Process Safety and Disaster Prevention

Each member company continues to make a high level of investment not only in the soft aspects of environmental measures including countermeasures for safety management but also in the hard aspects of environmental measures including improvement of facilities. In fiscal 2005, the total investment in the countermeasures for process safety and disaster prevention reached about 58 billion yen (16% increase from the previous year). The percentage of the investment to the sales was 0.32%. Like the investment in environment, this in-

vestment was also a record high.

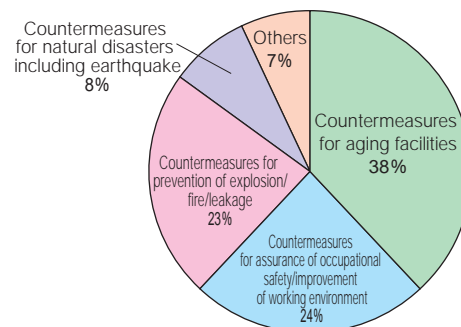
The categories of investment in the countermeasures for process safety and disaster prevention are shown in the figure below and their order was the same as that recorded in fiscal 2004. The countermeasures for aging facilities, those for assurance of occupational safety/improvement of working environment, those for prevention of explosion/fire/leakage and those for natural disasters including earthquake accounted for 38%, 24%, 23% and 8% respectively.

### Investment in Process Safety and Disaster Prevention



The figure in the bar graph indicates the number of companies that submitted their data.

### Categories of the Investment in the Countermeasures for Process Safety and Disaster Prevention





# JRCC Activities <Dialogue with Society>

In the responsible care programs, various activities are positioned as important elements. For example, the companies that handle chemical substances are to voluntarily promote the projects to protect environment, safety and health. Furthermore, they are to disclose the results of their projects, promote interaction/communication with society and deepen mutual understanding.

Each JRCC member company develops the interaction/communication activities with society in line with this basic concept. The JRCC also organized the Dialogue Working Group to hold the dialogues around the country. Moreover, the JRCC actively promotes the public relations activities by publishing the quarterly journals. In this manner, it fosters the mutual understanding with the general public.

## Community Dialogues

The JRCC holds the "community dialogues" for the local residents and administrative staffs in the 15 areas around Japan. It makes continuous efforts to explain the activities of local JRCC member companies and promote understanding of their industrial activities.

In fiscal 2005, aiming at "implementation of interactive communication," the JRCC held the community dialogues in six areas (Yamaguchi Nishi, Kawasaki, Toyama/Takaoka, Oita, Sakai/Senboku, Iwakuni/Otake) from November 2005 to March 2006.

In Iwakuni/Otake area, a questionnaire survey was conducted, in advance, on the community residents and the results obtained suggested that they were interested in the measures for safety/disaster prevention and environmental protection. In view of their interest, the theme of the interaction/communication was defined as "safety and disaster prevention" and the environmental problems were also mentioned in the panel discussion.

A plant tour was arranged for the residents in Sakai/Senboku area. The participants asked about safety of facilities, problems in the working environment including noise, cases of accidents and methods for expressing safety during the tour. The staffs of the plant answered the questions and the participants had a lively exchange of views.

In the dialogue in Toyama/Takaoka area, the participants asked about the safety measures taken during transportation of hazardous materials, prevention of occupational accidents and simulation of diffusion in the event of generation of toxic gas. The staffs of the plant answered these questions.

By elaborately promoting the interaction/communication in this manner, the JRCC could establish the relationship between companies and community residents that enabled better mutual understanding.



## Risk Communication Training

Providing information in easy-to-understand words is essential for effectively promoting communication between companies and community residents.

In October 2005, the JRCC held the 2nd risk communication training as a two-day course, and fourteen staffs of the member companies participated in this program. The participatory and empirical approach was taken in this training program and the participants learned the following three skills: "listening," "designing the appropriate communication process" and "giving a presentation and preparing an adequate risk message for presentation." The participants highly appreciated this training program because they could learn the following important points to be considered in the process of preparation of the documents that could be easily understood by the community residents. The order of arrangement of stories should be considered in the process of preparing the materials to explain the cases. Instead of technical terms, easy-to-understand expressions should be used in the documents. Special attention should be directed to the sizes and arrangements of characters.

## Public Relations Activities

The JRCC prepares the following pages on its website to foster better understanding of its activities: "Do you know Responsible Care?," "Responsible Care Report," "JRCC News," "About JRCC" and "Responsible Care Verification." <http://www.nikkakyo.org/organizations/jrcc/index.html>

In "JRCC News," a quarterly, JRCC activities and their results, the activities of the member companies and their factories/plants and the international trends of Responsible Care are reported.





# JRCC Activities <Report Presentation, Survey>

The Responsible Care Report was first launched in 1996, and since the following year in 1997, Report Presentation has been conducted yearly in Tokyo and in Osaka. Apart from giving a presentation on the report during this occasion, there are also presentations on members' initiatives as well as lectures. Participants are not limited to members but stakeholders are also invited. A survey regarding the Report and the Presentation is also undertaken, the results of which are reflected onto the succeeding programs.

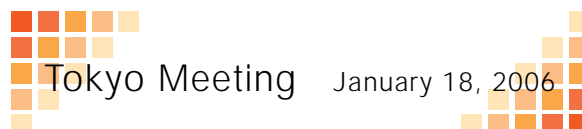
## Report Presentation

The theme for fiscal 2005 was Process Safety, and was implemented in Osaka in December, 2005 and in Tokyo in January, 2006, with 130 and 140 participants respectively. There were attendees from the government, labor unions, universities, mass communication.



### Osaka Meeting December 22, 2005

1. Greeting: Mr. Daisuke Ogawa (Chairman, Kansai Chemical Industry Association)
2. Report Presentation: Mr. Yukito Nagamori (Head, Report Working Group)
3. Case Studies (refer below)
4. Lecture: Prof. Terushige Ogawa (Yokohama National University)  
'Accident Prevention in Chemical Industry'



### Tokyo Meeting January 18, 2006

1. Greeting: Mr. Koji Kudo (Chairman, JRCC Planning and Operations Committee)
2. Report Presentation: Mr. Yukito Nagamori (Head, Report Working Group)
3. Case Studies (refer below)
4. Lecture: Prof. Yoichi Uehara (Yokohama National University)  
'What Responsible Care Demands from Us'



### 【Case Studies】

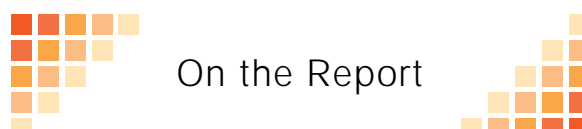
1. 'Process Safety Activities advance by 4 Safeties' Mr. Isao Higashimakahara, ADEKA (Osaka and Tokyo)
  2. 'Our Process Safety Activities' Mr. Fumio Usukura, Nippon Paint (Osaka) /Mr. Masao Hirose, Nippon Paint (Tokyo)
- Details are posted on the JRCC Homepage.  
<http://www.nikkakyo.org/organizations/jrcc/news/no41/b.html>

## Survey



### On the Report Presentation

Out of 140 participants, 71% said their understanding of Responsible Care improved by their participation in this meeting. Including those who replied "greatly improved" this increases to 83%. On the other hand, those who said, "can not understand any" numbered 16%, and those that said "can not understand" were about 1%.



### On the Report

Out of 68 respondents, 32% said that the contents of the Report are complete, 64% said "normal," 4% said "inadequate". On the form, there were opinions such as "too many texts", "very few negative information" "inadequate cases of initiatives"

Presently, creating better Report content, more case studies, and lectures are being considered.

# Member's Dialogue with the Public <Responsible Care Report>

The JRCC member companies prepare their Responsible Care reports and disclose their results of Responsible Care activities to the community to promote communication with the general public. In this manner, they make efforts to increase understanding of their roles in the society.

## Issuance of Responsible Care Reports

In fiscal 2005, a total of 73 member companies (78% of the respondents) issued their Responsible Care reports, representing an increase of six companies from the previous year. This indicates a steady increase in the number of companies issuing their reports.

## Issuance of Site Reports

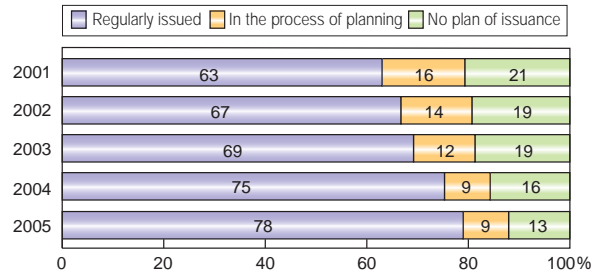
In fiscal 2005, 29 member companies (31% of the respondents) issued their site reports (local reports), as a means of communication with community residents, representing an increase of three companies from the previous year. Of the member companies that issued their company-wide reports, 58% prepared the pages of site data including the environmental data and compliance with regulations in their company-wide reports.

## Contents of Reports

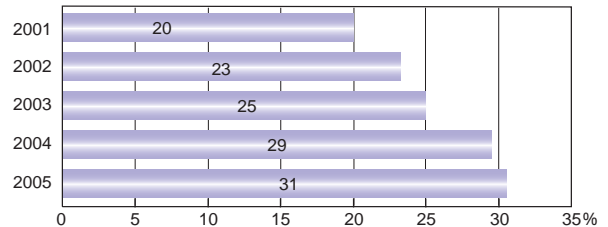
As in the case of the results in the previous year, more than 70% of the member companies reported the responsible care items (environmental preservation, security and disaster prevention, occupational safety and health, safety of chemicals/products, safety of distribution, interaction/communication with community).

An increasing number of member companies reported the data on their social activities. More than 50% of the reports included such topics as disclosure of informa-

### Issuance of Responsible Care reports



### Issuance of site reports



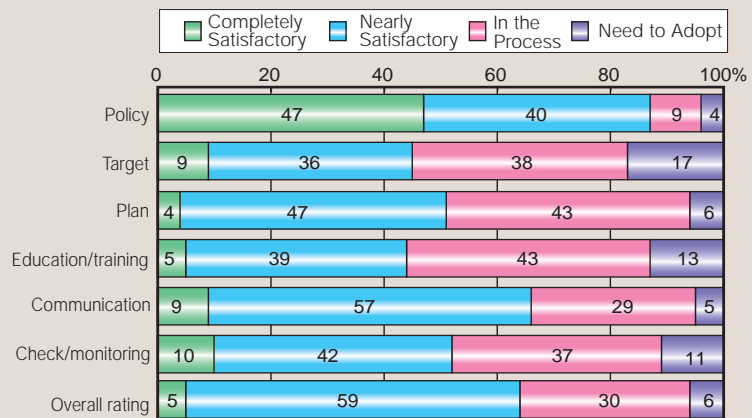
tion other than environmental information/communication programs, protection of consumers/assurance of product safety and human rights/employment.

The member companies also provided, in their reports, the information about their responsible care activities including acquisition of the certificate of undertaking the third party verification by Responsible Care Verification Center and the comments on their reports by the third parties (results of inspection/verification/audit and opinions/remarks). The number of member companies providing such information increased from 28 in the previous year to 36 this year and accounted for about half of the member companies issuing their reports.

### Members' Self-Assessment

### Interaction/communication with the public

As in the case of the data in the previous year, the data obtained in this year shows the lowest rating among the seven codes. The percentages of "in the process" and "need to adopt" decreased by two to eight points throughout the items. This result reflected overall improvement compared with the result obtained in the previous year.



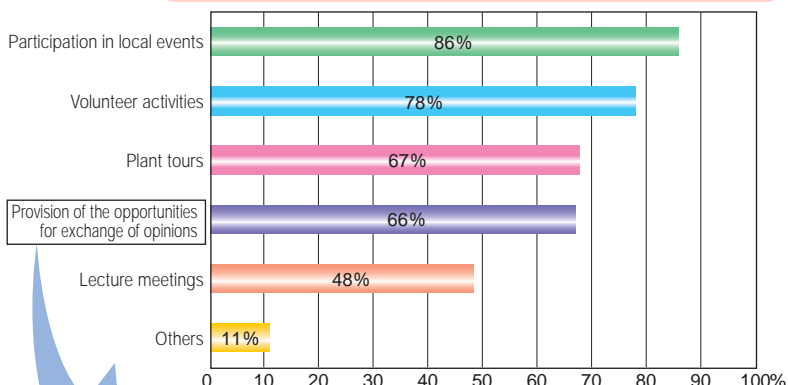
## Member's Dialogue with the Public <Communication with the Community>

The JRCC member companies recognize the importance of harmonization with local communities and promote various communication activities to establish relations of trust with community residents.

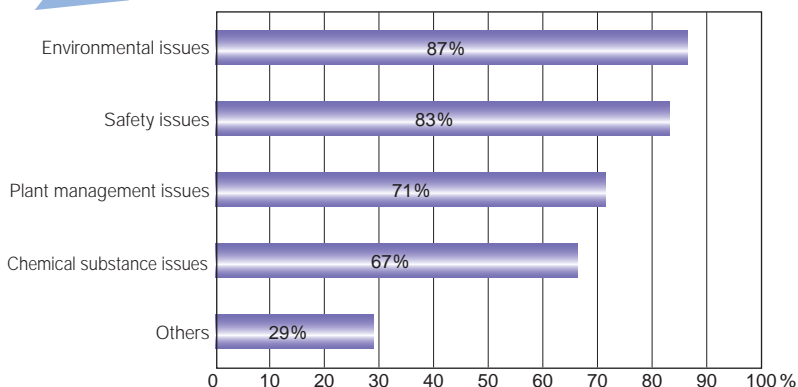
In order to promote communication with local community residents, the member companies participate in or support the local events and voluntary activities, arrange the plant tours for the residents and elementary/junior high school students, hold lecture meetings in schools and sponsor educational programs in adult courses. Furthermore, many companies provide the opportunities for exchange of opinions to promote communication with local communities.

In fiscal 2005, 66% of the member companies held a total of 357 meetings for exchange of opinions in 127 areas. In these meetings, the participants discussed mainly the following issues which were closely related to their community: environmental issues including air/water pollution and noise, safety issues including the countermeasures for accidents and disaster prevention, plant management issues including addition of facilities and changes of lands and safety of chemical substances.

Means of communication (multiple answers allowed)



Issues discussed in the meetings for exchange of opinions (multiple answers allowed)



Biotope



Chemical experiment class



Plant tour



Voluntary activity in the event of accident

# International Activities

The JRCC exchanges information with chemical industry associations all over the world, contributing to the dissemination of Responsible Care.

## RCLG Tokyo Meeting

The chemical industry associations from 52 countries all over the world implementing Responsible Care have joined the Responsible Care Leadership Group (RCLG), cooperating to address various issues. The fiscal 2005 RCLG Meeting held in November 22 ~ 23, saw the attendance of numerous participants from Asia, Oceania, Europe, South Africa, and South America.

In the meeting, the JRCC presented the importance of capacity building and dialogue in Japan's Responsible Care activities. Afterwards, the RCLG Chairman, Mr. Bach, gave a narration of the events that led to the approval of the Responsible Care Global Charter of the ICCA.

Further, the following presentations and discussions were also held:

- Action Plan for the Official Announcement of the Global Charter in 2006 February
- Approval of Association Commitment pledging support for the Global Charter

- Future Issues and Action Plans based on the Global Charter
- Capacity building and support for the safe use of chemicals in developing countries
- Introduction of national Responsible Care activities by the JRCC and the Australian Association



## Participation in the 9th APRCC

Chemical Industry Associations and stakeholders in the Asia-Pacific region meet once in two years to introduce the initiatives in their own country during the Asia Pacific Responsible Care Council and at the same time deliberate on current issues.

The 9th APRCC was held in Manila, Philippines from November 16 ~ 17, 2005, attended by participants from Asian countries, Australia, New Zealand, as well as RCLG Members from the ICCA.

The JRCC is always present in the APRCC, and in fiscal 2005, there were 4 member companies and the JRCC secretariat present in the event. However, this was the first time that the JCIA set-up a booth for public relations wherein posters of the participating companies, the JCIA, and the JRCC were displayed and

English pamphlets were distributed.

During the convention, there was a lecture by the RCLG Chairman, and a ceremony for the regional launch of the Responsible Care Global Charter all countries submitted their respective Association's signed Commitment to the RCLG Chairman. The 250 participants in attendance were given 16 presentations on Product Stewardship and Best Practices, and engaged themselves in a lively Question and Answer session, evident of the high level of interest in Responsible Care activities. Japan presented "Recovery Technology of Waste Solutions from Halogen" (Tosoh), "Risk Assessment and Emission Reduction" (Mitsubishi Chemicals) and "New Recycle System of Plastics" (Showa Denko).



JCIA PR Booth



Lecture of Mr. Hirabayashi(Showa Denko)



## Capacity Building (Dissemination of Responsible Care)

The JRCC has a dissemination project that implements capacity building (human resources development and skills upgrading) on Responsible Care and GHS in the ASEAN region.

### Assistance in the Philippines

The assistance program for Responsible Care in the Philippines is now on its third year in 2005. Capacity building for verifiers was implemented as part of the introduction of the Responsible Care Verification System. Seminars were conducted for candidate verifiers, who thereafter underwent practical verification training doing verification for several companies. As a result, there were 8 successful candidates who were qualified as Verifiers.



### Assistance in Vietnam

The assistance program for Responsible Care in Vietnam commenced in fiscal 2005. In preparation for its adoption, education and training on Responsible Care were conducted for the association and the companies. The seminars and plant visits were conducted in Hanoi and Ho Chi Min, the core cities aimed at for the dissemination of Responsible Care. During the company visits, the interest and enthusiasm to adopt Responsible Care were evident.



## Capacity Building (GHS Dissemination)

The 3-year project on the dissemination of GHS in Indonesia, Malaysia, Philippines, Thailand and Vietnam was concluded in 2006. The objective of this project was to "train the trainers in the adoption of GHS in various countries" and a training curriculum was created. This also integrated practical training and exercises on the use of the internet, and lastly, classification of mixtures and labeling.

This project involves the Japan External Trade Organization (JETRO) and the Association for Overseas Technical Scholarship (AOTS). It further utilized the AOTS Training scheme, wherein 20 participants from the graduates of advanced course were invited to Japan for a 2-week Trainers' Training.

Subsequent projects in Cambodia, Laos and Myanmar are being scheduled.



**GHS : " Globally Harmonized System for the Classification and Labeling of Chemicals "**  
New Chemical Management System under the guidance of the United Nations

# Interaction among Members

The JRCC holds the social gatherings and study meetings to promote interaction among members. It also makes efforts to improve the quality of responsible care activities through the information exchange programs among members, panel discussions, small meetings for exchange of opinions and lectures by external specialists. Various JRCC programs have contributed to improvement of the member companies' Responsible Care activities. These programs include the presentation of members' best practices, exchange of opinions on special subjects in small groups and provision of the opportunities for reporting the experience of coping with accidents and expressing frank comments. In fiscal 2005, the 10th anniversary of establishment of the JRCC, in addition to these programs, the memorial event contributed to promotion of mutual communication.

## Event Marking the 10th Anniversary of Establishment of the JRCC

The JRCC, which was established on April 19, 1995, marked its 10th anniversary in April 2005. The JRCC held the lecture meeting in celebration of its 10th year since its establishment. It also reflected its past activities and stored the data about its achievements and present conditions on a DVD.

The 10th anniversary lecture meeting, which was held in Nadao Hall, Shin-Kasumigaseki Building on November 21, was attended by 250 persons. The 10th anniversary DVD was played, various lectures were given and the member companies' friendship was promoted in the memorial meeting.

- 1) Looking Back on the 10-year Responsible Care Activities and Future Prospects  
(Mr. Tanaka, JRCC Secretary General)
- 2) Global Responsible Care Activities  
(Mr. Bach, RCLG Chairman)
- 3) Social Corporate Responsibility Required for Chemical Companies  
(Prof. Iwao Taka, Komazawa University)
- 4) Considering Environment under the Current Social Conditions  
(Prof. Takeshi Yoro, Tokyo University)



The followings are recorded on the 10th anniversary DVD.

- 1) Graphically visualized 10-year activities
- 2) Best practices by member companies (13 cases)
- 3) JRCC debriefing sessions/forums
- 4) Responsible Care verification
- 5) Efforts for safety assessment/research activities
- 6) International cooperation

The 12-minute visual concept was also inserted as a brief explanation.

The DVD, which is played in the interaction meetings, local interaction meetings and plant tours sponsored by the JRCC member companies, contributes to explanation of the Responsible Care activities intelligibly.

An English version was also prepared and distributed to overseas chemical industry associations and foreign companies affiliated with the member companies. In this manner, the JRCC promotes understanding, on the side of foreign industrial sectors, of the responsible care activities in Japan.

## Interaction Meeting for Member Companies

Interaction Meeting for the JRCC Member Companies, which was attended by 111 persons, was held in Osaka on April 18. Mr. Masato Takano, a lawyer, gave a lecture titled "Legal Sense of Safety Consideration." Then, several section meetings were held to discuss risk communication and occupational safety. In these meetings, the common company related or personal challenges and problems explained by the participants were frankly discussed and important information including the external cases and comments could be shared among them.



## Study Meetings

The study meetings were held on September 16, 2005 and March 15, 2006. Eighty-six persons attended the first study meeting on Corporate Social Responsibility (CSR). In addition to two JRCC member companies, Sumitomo Chemical and Kao Corporation, NEC Corporation participated in the study meeting and they gave the lectures on their activities. The participants learned more about CSR through the subsequent panel discussion moderated by Prof. Noriyuki Kinjo, Ochanomizu University.

In the second study meeting, which was attended by 97 persons, Mr. Takuya Goto, Chairman, Kao Corporation, and Mr. Toshio Ohi, Corporate Officer and Executive Officer, Chemicals Sector, Showa Denko K.K., gave their lectures titled "Kao's Corporate Attitude and 'Good Craftsmanship'" and "Miscellaneous Thoughts about Responsible Care Activities at Worksites: Case of Chemical Plant" respectively.



# Responsible Care Verification

Responsible Care Verification Fiscal 2005 (2005 April ~ 2006 March)  
Implementation Status

Date of Verification	Company	Date of Verification	Company
May, 2005	Asahi Kasei (Report)	August, 2005	Daicel Chemical Industries (Report)
May, 2005	JSR (Report)	August, 2005	Zeon (Report)
May, 2005	Sanyo Chemical Industries (Report)	September, 2005	Dainippon Ink & Chemicals (Report)
June, 2005	Kaneka (Report)	October, 2005	Tosoh (Activities)
June, 2005	Tokuyama (Report)	October, 2005	Hokko Chemical Industry (Activities)
June, 2005	Kyowa Hakko Kogyo (Report)	December, 2005	Chugoku Kayaku (Activities)
June, 2005	Nippon Shokubai (Report)	March, 2006	Showa Denko (Activities)
August, 2005	Ube Industries (Report)		

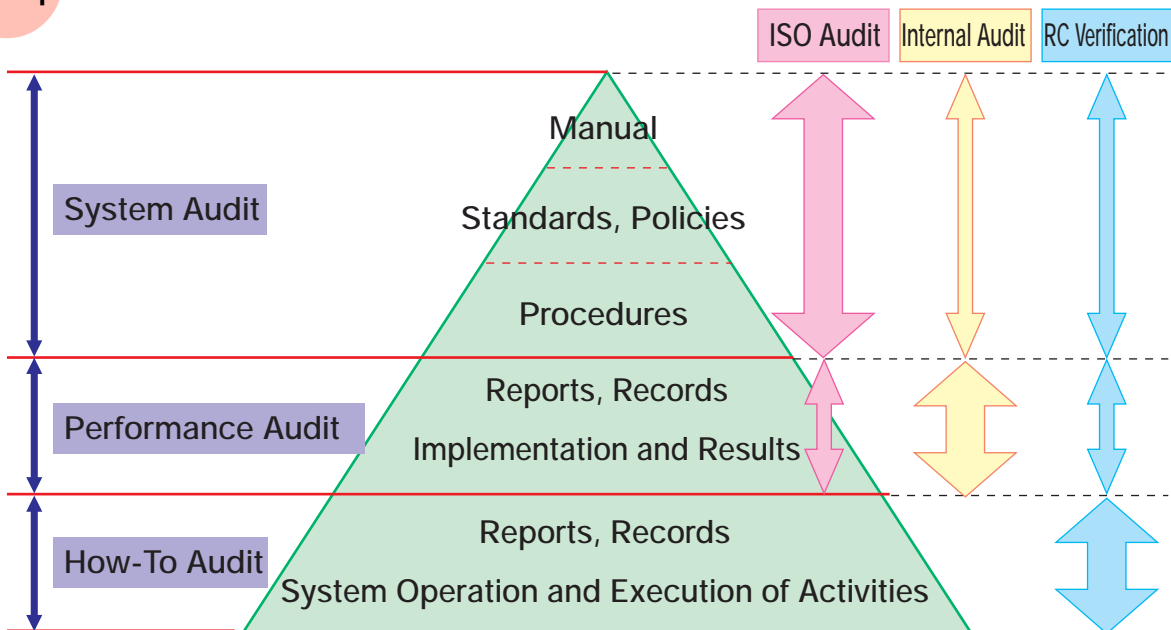
## Features of Responsible Care Verification

The Responsible Care Verification of Japan is, as compared to that of other countries, includes verification of the Responsible Care Report (Environmental Report, CSR Report) in addition to the verification of activities. Report verification entails the evaluation of the rationality of data gathering method of performance data, the accuracy of data, the appropriateness of report contents.

Activity Verification is characterized by the fact that it is a "How-To Audit" that is, it evaluates how the activities are being done, how the activities are being advanced. As shown in the diagram below, the depth of the Audit can be categorized into 3 stages. The first stage is the

"System Audit" as typified ISO certifications. This evaluates the presence or absence of documents for standards, procedures, and others. The second stage is the internal audit, which is normally done by companies. This evaluates the kind of activities being implemented, and as a result, what is the outcome obtained (performance). Responsible Care Verification is the third stage audit. Assuming that an activity has been performed and results have been obtained. The evaluation focuses on whether the selection of the activity has been appropriate or not, and whether its execution was an effective way to obtain results. For purposes of nomenclature, it can be termed as a "How-To Audit." The prerequisite for Responsible Care Verification, therefore, would be the existence of a system (first stage) and that the best activity is being implemented (second stage). Its objective is to get the most output from the PDCA cycle.

## Depth of Audit



(The thick arrows refer to the focus of audit while the thin arrows refer to audit as the case may call for)

# Our Expectations for Responsible Care

## Future Responsible Care Activities: How to Promote Community Dialogue

**Akemi Ori**, Assistant Professor  
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As the importance of risk communication in control of chemical substances increases, the importance of "community dialogue," which has been promoted as part of Responsible Care since 1996, has been increasingly recognized. The local programs of "community dialogue" have been deliberately prepared year by year and the earnest efforts devoted to these programs have been highly evaluated by the participants. Many participants request continuation of these programs. However, such participants' response is produced not by their evaluation of "dialogue" but by their evaluation of the companies' positive attitude of "explanation." It is important to change the position of "community dialogue" from the opportunity of "explanation" to the "opportunity of interaction including "risk communication." By changing its position, the true "community dialogue" can be achieved in the future Responsible Care activities.

In order to achieve the true "community dialogue," the JRCC member companies can take various approaches. For example, the themes reflecting the community residents' interests can be selected or the industrial sectors other than the chemical industrial sectors in the complex area are encouraged to participate in the interaction with community. The member companies can propose establishment of the system that enables the participants to recognize contribution of "dialogue" to improvement of control of chemical sub-

stances in the community. The companies can select the chemical substances that attract the community residents' interests and provide information about such substances including the product risks with due consideration for their lifestyles. Furthermore, in order to promote practical "dialogue," the persons in charge need special training to acquire excellent communication skill. However, the most important part of interaction with community is that the top executives understand the significance of "dialogue" and support such activity by providing sufficient human and material resources.

We should recognize that the results of "dialogue" and "risk communication" can not be visualized immediately. Like wine which requires long-term quiet fermentation for its maturation, "dialogue" needs endless investment for fruitful results to be obtained many years later. Whether the expressions such as "risk communication" and "dialogue" take root as important elements of CSR in companies or are regarded as vogue-words depends on their attitude toward investment in the future.

## Importance of Consistent Reliability of Worksite, Process and Products

**Kikuji Yamamoto**, Representative of Union Institute for Policy Development  
Japanese Federation of Energy and Chemistry (JEC) Workers Unions



Public concern for safety of products is growing recently. Safety and reliability of chemical products, which are related to such an issue, have been discussed from the aspects of their effects on our daily life and environment. For example, so-called endocrine disruptors and dioxin have attracted much public attention. Because we work for chemical industry, we strongly hope that the functions of chemical products are appropriately evaluated and they are safely used by consumers and general public.

There is a globally accelerating trend to control chemical products according to various methods. We expect that some practical problems will occur in the process of coping with new control systems. The workers unions understand the goals and play an active role in achieving them. The importance of Responsible Care activities practically promoted in the industry is increasingly recognized in this situation. Voluntary control and regulation are different functions although the sectors involved in these functions are expected to make earnest efforts to provide and disclose information by answering the questions asked by consumers, general public and the workers involved in each industrial process and relieve their anxiety.

We should direct attention to the fact that continuation of Responsible Care activities resulted in visible outcomes such as reduction of emission of chemical substances and replacement of toxic substances. It is necessary for the chemical industry to take prompt actions toward the newly developed chemical products and their mixtures and investigate their influences. In this manner, the industry should make efforts to assure the general public of safety of chemi-

cal products and gain their trust. We often hear that the explanation of chemistry and chemical information are too difficult for ordinary people to understand. Generally, people can not accurately differentiate the concept of hazard from the concept of risk. We recognize the necessity for defining the knowledge and information about safety of chemical products that should be acquired by the general public and wonder if those involved in the Responsible Care activities can define them.

We frequently encounter the reports of plant accidents. We are sure that industrial safety, occupational safety and environmental safety are three inseparable elements and that safe workplace, safe process and safe products are three closely linked important elements. We expect that the chemical industry devotes more efforts to assure safety with due consideration for this important linkage which is the origin of Responsible Care activities and the backbone of future activities.

I expressed both expectation and comments in this short essay. Although the employee-employer relationship exists in the chemical industry, both of them are the important members of this industry. We also make continuous efforts to address the issues in this age of diverse views and support Responsible Care activities so that social trust in chemistry can be established steadily.

# The JRCC Members List

102 companies as of October 2006

ADEKA CORPORATION  
Air Products Japan, Inc.  
Asahi Glass Co., Ltd.  
Asahi Kasei Corporation  
BASF Japan Ltd.  
Bayer Ltd.  
Central Glass Co., Ltd.  
Chisso Corporation  
Chugoku Kayaku Co., Ltd.  
Ciba Specialty Chemicals K.K.  
Crystex Japan K.K.  
Daicel Chemical Industries, Ltd.  
Daihachi Chemical Industry Co., Ltd.  
Dai-ichi Kogyo Seiyaku Co., Ltd.  
Daikin Industries, Ltd.  
Dainichiseika Color & Chemicals Mfg. Co., Ltd.  
Dainippon Ink & Chemicals, Incorporated  
Dai Nippon Toryo Co., Ltd.  
Daiso Co., Ltd.  
Denki Kagaku Kogyo K.K.  
Dow Chemical Japan Limited  
DuPont Kabushiki Kaisha  
DuPont-Mitsui Fluorochemicals Co., Ltd.  
DuPont-Mitsui Polychemicals Co., Ltd.  
FUJIFILM Corporation  
Hitachi Chemical Co., Ltd.  
Hodogaya Chemical Co., Ltd.  
Hokko Chemical Industry Co., Ltd.  
Idemitsu Kosan Co., Ltd.  
INCTEC INC  
Japan Acrylic Chemical Co., Ltd.  
Japan Carlit Co., Ltd.  
JSR Corporation  
Kaneka Corporation  
Kansai Paint Co., Ltd.  
Kanto Denka Kogyo Co., Ltd.  
Kao Corporation  
Koei Chemical Company, Limited  
Konica Minolta Holdings, Inc.  
Kuraray Co., Ltd.  
Kureha Corporation  
Kureha Plastics Corporation  
Kyowa Hakko Kogyo Co., Ltd.  
Lion Corporation  
Maruzen Petrochemical Co., Ltd.  
Mitsubishi Chemical Corporation  
Mitsubishi Gas Chemical Company, Inc.  
Mitsubishi Pharma Corporation  
Mitsubishi Rayon Co., Ltd.  
Mitsui Chemicals, Inc.  
Mizusawa Industrial Chemicals, Ltd.  
Nankai Chemical Industry Co., Ltd.  
Nihon Nohyaku Co., Ltd.  
Nippon Bee Chemical Co., Ltd.  
Nippon Chemical Industrial Co., Ltd.  
Nippon Kayaku Co., Ltd.  
Nippon Paint Co., Ltd.  
Nippon Petrochemicals Co., Ltd.  
Nippon Polyurethane Industry Co., Ltd.  
Nippon Shokubai Co., Ltd.  
Nippon Soda Co., Ltd.  
Nippon Steel Chemical Co., Ltd.  
Nippon Unicar Company Limited  
Nissan Chemical Industries, Ltd.  
NOF Corporation  
Polyplastics Co., Ltd.  
Rohm and Haas Japan K.K.  
Sakai Chemical Industry Co., Ltd.  
Sanyo Chemical Industries, Ltd.  
Sekisui Chemical Co., Ltd.  
Sekisui Plastics Co., Ltd.  
Shell Chemicals Japan Ltd.  
Shikoku Chemicals Corporation  
Shin-Etsu Chemical Co., Ltd.  
Showa Denko K.K.  
Showa Highpolymer Co., Ltd.  
Showa Tansan Co., Ltd.  
Sika Ltd.  
Sumika Bayer Urethane Co., Ltd.  
Sumitomo Bakelite Co., Ltd.  
Sumitomo Chemical Co., Ltd.  
Sumitomo Dow Limited  
Sumitomo Seika Chemicals Co., Ltd.  
SunAllomer. Ltd.  
Takeda Pharmaceutical Company Limited  
Taoka Chemical Company Limited  
Tayca Corporation  
Techno Polymer Co., Ltd.  
Teijin Limited  
The Nippon Synthetic Chemical Industry Co., Ltd.  
Toagosei Co., Ltd.  
Tokuyama Corporation  
Tonen Chemical Corp.  
Toray Industries, Inc.  
Tosoh Corporation  
Toyo Ink Mfg. Co., Ltd.  
Toyo Kasei Kogyo Co., Ltd.  
Tsurumi Soda Co., Ltd.  
Ube Industries, Ltd.  
UMG ABS, Ltd.  
Wilbur-Ellis Co., (Japan) Ltd.  
ZEON CORPORATION



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