

# RESPONSIBLE CARE REPORT 2006

## Safety and Environmental Initiatives

 SUMITOMO SEIKA CHEMICALS CO.,LTD.

Please direct opinions and inquiries to:

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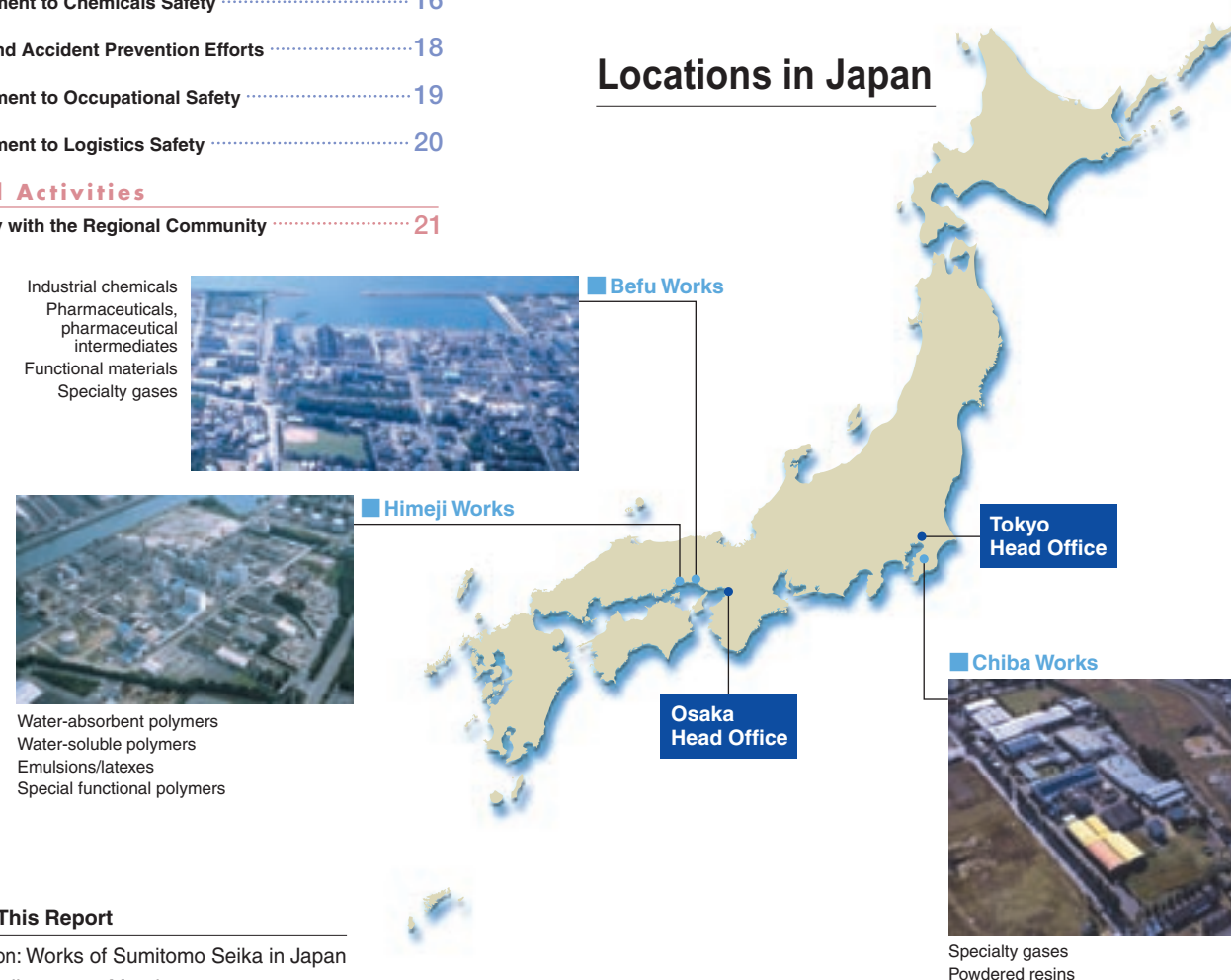
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## Company Outline (as of March 31, 2006)

<b>Company Name</b>	Sumitomo Seika Chemicals Company Limited
<b>Head Offices</b>	Osaka: 4-5-33 Kitahama, Chuo-ku, Osaka, Japan Tokyo: 1-13-5 Kudan Kita, Chiyoda-ku, Tokyo, Japan
<b>Website</b>	http://www.sumitomoseika.co.jp/
<b>Established</b>	July 1944
<b>Capital</b>	¥9,698 million
<b>Sales</b>	¥46,737 million (consolidated) ¥38,864 million (non-consolidated)
<b>Employees</b>	977 (consolidated) 703 (non-consolidated)
<b>Major Lines of Business</b>	
<b>Chemical Businesses</b>	
Fine Chemicals	Industrial chemicals, pharmaceutical products, and functional products
Functional Polymers	Superabsorbent polymers, water-soluble polymers, fine-powder polymers, and construction materials
<b>Gas Engineering Businesses</b>	
Gas	Gases for medical use, chemical gases, standard gases, and gases for production of semiconductors
Engineering	Generators of oxygen, nitrogen and hydrogen gas, general chemical machinery, and pollution control devices
<b>Works</b>	
Befu Works	346-1 Miyanishi, Harima-cho, Kako-gun, Hyogo, Japan
Himeji Works	1 Irifune-cho, Shikama-ku, Himeji City, Hyogo, Japan
Chiba Works	1384-1 Kamikoya, Yachiyo City, Chiba, Japan

## Locations in Japan



### Scope of This Report

Organization: Works of Sumitomo Seika in Japan  
 Period: April 1, 2005–March 31, 2006  
 Fields: Environmental safety initiatives and environmental performance data in summary form  
 Publication date: October 2006 (The next issue is scheduled for September 2007.)

## Message from the President

# Ensuring Safety and Protecting the Environment

At Sumitomo Seika, we have adopted the policy of achieving harmony and mutual prosperity with society. Moreover, we have developed unique technologies applicable to the chemical industry worldwide. We remain dedicated to contributing to society by providing both domestic and international markets with high-quality products incorporating special features.

The Sumitomo Seika Group is currently addressing the important issues of compliance with laws and regulations, quality assurance, and environmental safety.

Specifically, we have identified the following priorities for our management policy:

1. to ensure zero injuries and zero accidents by building on a foundation focused on safety above all else;
2. to respond appropriately to the risks surrounding the company; and
3. to focus our corporate initiatives on safety assurance and environmental protection by adopting the policies of Responsible Care, a set of voluntary initiatives to ensure a responsible approach throughout the entire product lifecycle from development to final disposal.

We are proud to present to the reader this, the 2006 edition of our Responsible Care Report. During fiscal 2005, we focused on the following three initiatives:

- 1) adopting measures to achieve zero accidents and zero injuries;
- 2) contributing to the establishment of a sustainable society by reducing the environmental impact of our operations; and
- 3) aggressively implementing Responsible Care activities.

We are confident this report will serve to clarify our environmental and safety initiatives as we take steps to improve our environmental protection and safety assurance efforts.

We look forward to your continued support as we pursue this endeavor.

October 2006

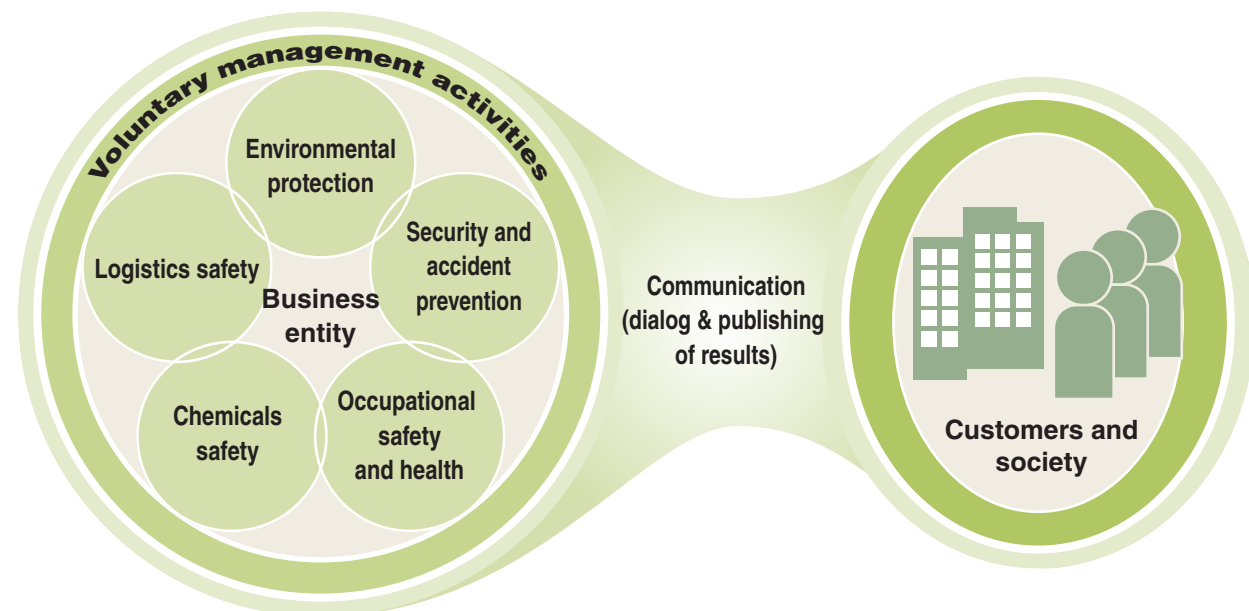


Ryuichi Sonoda  
 President  
 Sumitomo Seika Chemicals Company Limited

## What Is Responsible Care?

In an effort to address problems related to the environment, safety and health arising from the growth of global environmental issues and industrialized regions — not to mention new issues arising from technological progress — modern industries are compelled, more than ever before, to voluntarily take responsible action in order to ensure that the chemical substances they use do not harm the environment, reduce safety, or endanger human health.

Against this background, the global chemical industry is voluntarily ensuring that no negative impact harms the environment, safety, or human health in any process from development, distribution, application, and end-use to final disposal. Moreover, the industry is publishing the results of its initiatives and maintaining an open dialog and good communication with residents of regional communities.



Community dialog meeting sponsored by JRCC (Himeji City, Hyogo)

### Responsible Care Symbol



Responsible Care

This symbol has been designed as "both hands and a molecular model" to show "careful handling of chemical substances." The symbol was determined by the International Council of Chemical Associations (ICCA) as a mark for use by enterprises and associations that are committed to responsible care activities. Use of this mark is permitted only to the national chemical industry associations that belong to ICCA and their members.

In Japan, this mark can be used only by the Japan Chemical Industry Association (JCIA), the Japan Responsible Care Council (JRCC) and JRCC member companies.

## Corporate Policy on the Environment and Safety

In our chemical business, Responsible Care activities are extremely important to ensuring continued sustainable development and earning the trust of society.

In 1995, Sumitomo Seika declared its commitment to promoting Responsible Care activities and established its Corporate Policy on Quality, the Environment and Safety.

Our corporate policy affords priority to specific objectives: achieving zero injuries and zero accidents, maintaining customer satisfaction, and ensuring harmony and mutual prosperity with society. To promote our efforts to attain these goals, we require all our employees to strictly observe laws and

regulations and continuously strive to adopt further improvements. Moreover, we have established our medium-term activity guidelines for the current fiscal year and are sharing our goals to ensure unity of purpose.

### Corporate Policy on Safety, Environment and Quality

March, 2006

Sumitomo Seika, with the fundamentals of "Safety comes first", manages its activities on the basic principles of (i) maintaining "zero-accident and zero-injury operations", (ii) ensuring "customer satisfaction" and (iii) promoting "co-prosperity with society".

With due respect to these principles, Sumitomo Seika, while fulfilling its responsibility to manufacture and supply a variety of unique and high-quality products utilizing innovative and advanced chemical technologies and contributing to the growth of society, especially on the occasion of product development and supply in the future, is determined to conduct all activities in accordance with the following policy related to quality, environment and safety.

- 1 To maintain zero-accident and zero-injury and obtain the safety of our employees and neighboring communities;
- 2 To ascertain the safety of raw materials, intermediates and products, and prevent our employees, distributors, our customers and consumers from being exposed to any possible hazard;
- 3 To supply products and services of the high quality with customers' confidence and satisfaction in their use;
- 4 To assess and reduce the environmental load at all operational stages, from product development through to disposal, to control the pollution.

All sections and employees of our Company shall be fully aware of the significance of this policy and shall continually improve management system and operational performance, while, of course, abiding by laws, regulations and standards and responding accurately requirements of customers and society, aiming to accomplish the following medium-term target,

#### [Safety]

1. To assess risk of manufacturing process, materials of handling and operational hazards and to execute pertinent countermeasures
2. To prevent human error
3. To enhance facility maintenance
4. To keep work place clean and tidy

#### [Environment]

1. To develop product and process with less environmental load
2. To reduce amount of air-pollutant release; i.e. PRTR-materials, VOCs and Greenhouse gases
3. To promote energy saving and resource saving

#### [Quality]

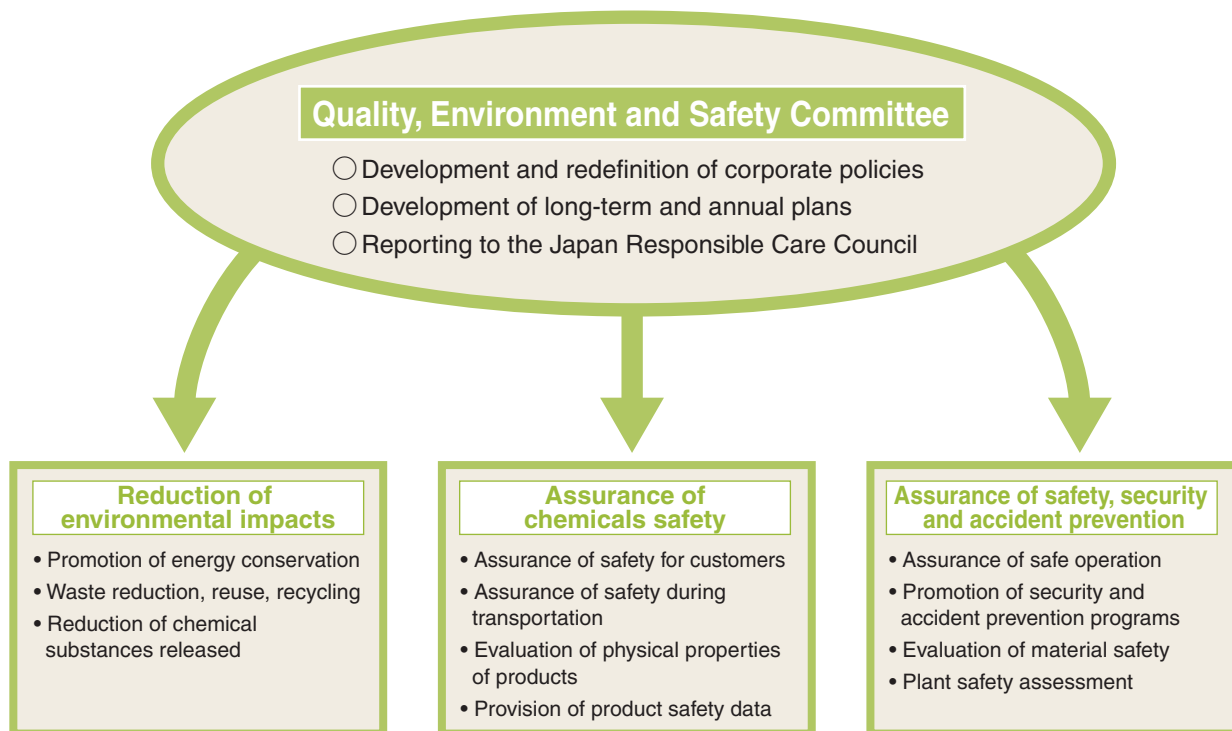
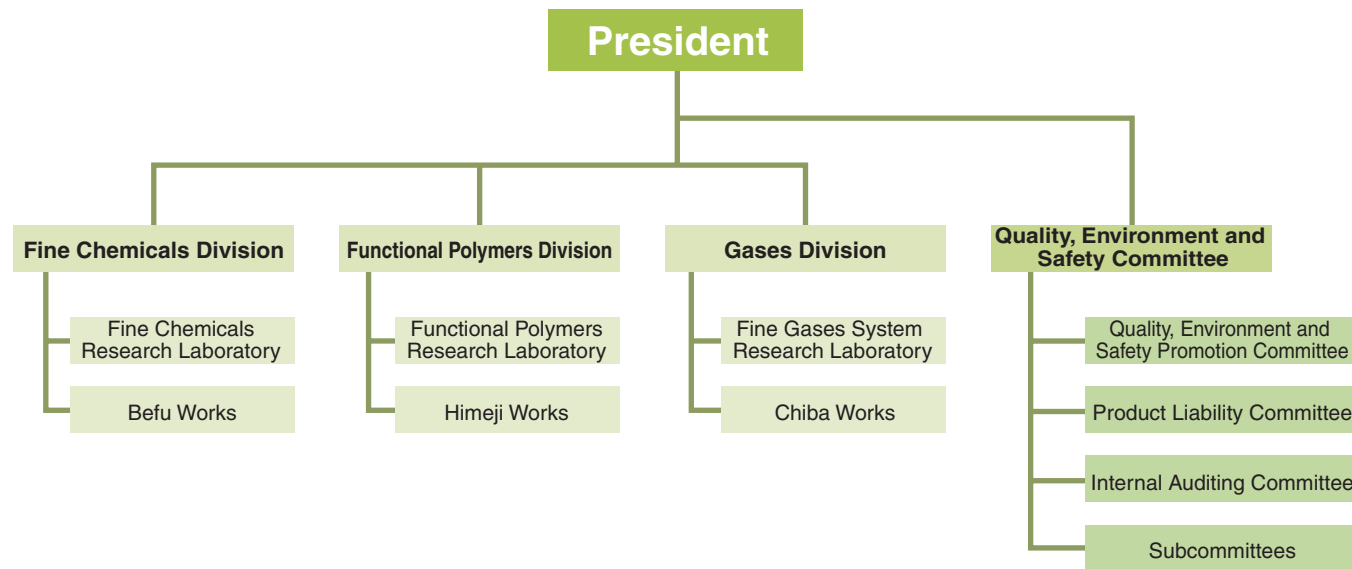
1. To improve product quality by keeping up on user's needs
2. To assess risk in case of 4M(Man, Material, Machine and Method)-change
3. To put in place a set of rules for manual, standard and instruction

PRTR: Pollutant Release and Transfer Register Act VOCs: Volatile Organic Compounds

(Established March 1995, and revised June 1999, March 2001, July 2003, and March 2006)

## Organization and System for the Environment and Safety

With the aim at promoting Responsible Care activities by top management, Sumitomo Seika has established a Quality, Environment and Safety Committee chaired by the director in charge of Quality, the Environment and Safety (Responsible Care) and composed of managers and other relevant staff from the various divisions. We develop a medium-to-long term plan in June of each year and deliberate and determine a fiscal year promotion plan in January. Items that have been determined are reported to the Quality, Environment and Safety Promotion Committee, which is comprised of Works managers, laboratory managers, and general managers. We promote efficient and continuous implementation of Responsible Care activities, such as drafting execution programs, confirming the state of progress, and deliberating on investigations and countermeasures targeting points at issue.



## Accelerating Responsible Care Activities

The requirement of Responsible Care activities is the voluntary planning, execution and review in management cycles that steadily achieve improvements.

### Basic Concept

Sumitomo Seika carries out initiatives in one-year cycles in the fields of environmental protection; security and accident prevention; occupational safety; chemicals safety; and logistics safety. We believe that such reviews are particularly important to ensure the task at issue is addressed consistently, that compliance with laws and regulations is followed, and that the realities of activities are correctly understood so that appropriate improvements are implemented.

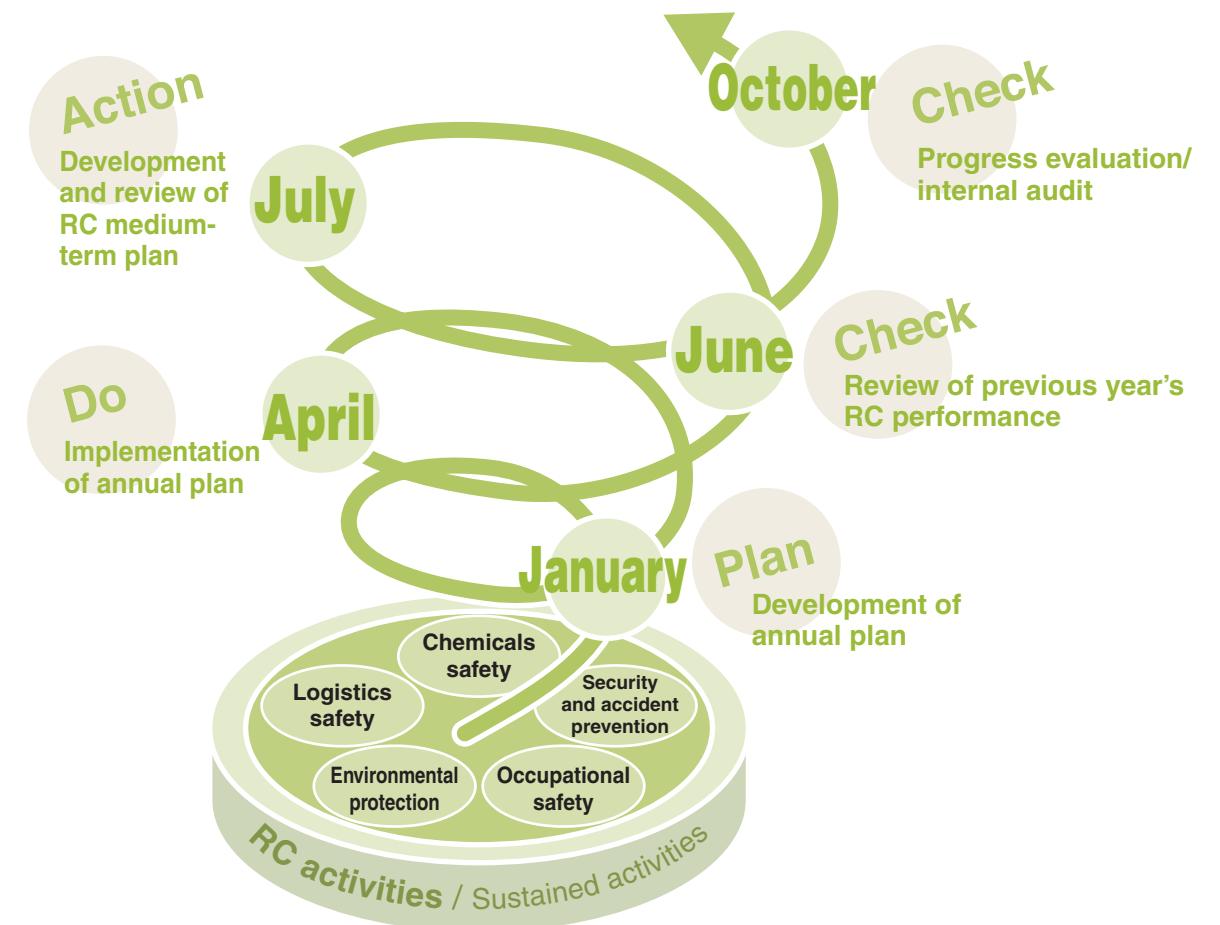
Having established the RC Internal Auditing Committee under the chairmanship of the director in charge of Responsible Care, we periodically review compliance with laws and regulations and the status of our activities.

In addition, we have established a system of internal auditors who undertake reviews of certification of ISO 14001 and ISO 9001 registration.

### Sumitomo Seika's Management System

The one-year management cycle for Responsible Care (RC) activities begins in April and comprises Plan, Do, Check, and

Action stages. We are working to increase the upward spiral according to this management cycle.



### RC Internal Audit

In fiscal 2005, we addressed mainly the following items focused on the Himeji Works and Sumitomo Seika Singapore Pte. Ltd.

1. Status of security and accident prevention (risk management and measures)
2. Compliance status
3. Status of all RC initiatives

As a result, we confirmed the steady improvement of the management level. In fiscal 2006, we will further expand this effort to specific Works.

## Responsible Management

# Acquisition of Environmental Management System (ISO 14001: 2004) Certification

As a means of enhancing awareness of environmental protection, an essential aspect of RC activities, our Works have acquired registration of ISO 14001 certification as part of our integrated system encompassing all our Works. Each of our divisions is engaged in continuous improvement.

## Quality Management System

Sumitomo Seika has already registered with the revised ISO 9001:2000 standard for quality management systems company-wide. In our pharmaceutical and medical intermediate businesses, we manage our production according to GMP

(Good Manufacturing Practice), the quality management standard for drug manufacturing.

Type	Target organization	Month and year of certification acquisition	Registration number	Standard designation	Certifying agency
Environmental Management	Befu, Himeji, and Chiba Works	June 2004	JCQA-E-0577	ISO14001	JCQA
Quality Assurance	Sumitomo Seika (company-wide)	December 1996	JCQA-0171	ISO9001:2000	JCQA
Quality Assurance	Engineering Division	June 1997	LRQA-JBC0957996	ISO9001:2000	LRQA

\*1 JCQA: Japan Chemical Quality Assurance Ltd.  
\*2 LRQA: Lloyd's Register Quality Assurance Limited



Document review



On-site review



ISO 14001 certificate

## Responsible Management

# Fiscal 2005 Environmental Protection and Safety Activities and Achievements

Our fiscal 2005 targets and achievements for environmental protection, occupational safety, security and accident prevention, logistics safety and chemicals safety are summarized below. For fiscal 2006, we are making further efforts based on our progress in fiscal 2005.

## Main Efforts and Results in Fiscal 2005

Scope	Target	Fiscal 2005 Implementation Plan	Achievement of Initiatives in Fiscal 2005	Assessment of Activities	Fiscal 2006 Objective	Details
Environmental Protection	Prevention of global warming	1% reduction in the energy basic unit rate relative to fiscal 2004 levels	Although measures were implemented to reduce steam loss and power use, the basic unit rate was decreased only 0.4% largely due to increased production.	○	Continuation of 1% reduction in energy basic unit rate	P9
		Addressing reduction of N <sub>2</sub> O emissions	Addressed technologies to reduce emissions under review	○	Addressing installation of a N <sub>2</sub> O emission reduction facility	
	Waste reduction	Reduction in final landfill disposal amount by 10% from fiscal 2004 levels	Promoted reuse and recycling of waste being disposed of by landfill	◎	Maintaining reduction in waste emissions from Works to fiscal 2004 levels	P10
		Reduction in waste emissions from Works by 5% from fiscal 2004 levels	Failed to reduce waste emissions from Works due to increased production volume	×	Maintaining landfilled amount and recycling rate to fiscal 2004 levels	
	Reduced release of substances subject to PRTR	Reduction in EDC and trichloroethylene emissions	Implemented measures to reduce priority substances by 25%	◎	Reducing emissions through installation of an EDC, trichloroethylene and 1,3-butadiene emissions reduction facility	P13
		Addressing technologies for reducing 1,3-butadiene emissions		○		
Reduced release of volatile organic compounds	Addressing technologies for reducing heptane and n-hexane emissions	Reduction technologies based on emissions remained under review.	○	Continuing study of technologies to reduce heptane and n-hexane emissions	P12 P14	
Improvement of the environmental management system through application of ISO 14001 standards	Switchover to revised ISO 14001:2004 system	Completed registration of revised ISO 14001:2004 system and passed to inspection	◎	Integration and extension of the ISO 14001 registration from three Works to a company-wide implementation	P6	
Occupational Safety	Achievement of zero injuries and zero accidents (zero accidents leading to suspension of operations and zero accidents not leading to suspension of operations)	Upgrading safety patrols by top management of Works, etc.	One accident leading to suspension of operations and ten accidents not leading to suspension of operations	△	Implementation of hazard and toxicity investigations and necessary countermeasures Provision of safety guidance and cooperation with subcontractors Strengthening of training	P19
Security and accident prevention	Elimination of serious accidents	Establishment of a process safety assessment system under new or changed management	No facilities accidents	◎	Promotion of process safety assessments by utilizing new assessment system under new or changed management	P18
		Implementation of process safety assessments for existing facilities and safety measures	Re-established the process safety assessment system under new or changed management and implemented inspections of existing facilities		Continuation of process safety assessments and safety measures in existing facilities	
		Improvement of inspections, upgrading of aging facilities, and systematic renewal			Strengthening of inspection of aging facilities and implementation of systematic maintenance	
Chemicals safety	Assurance of chemicals safety	Provision of updated MSDS	Implemented revision of compressed gas products, etc.	○	Proper response to world labeling standards for chemicals for labeled products, etc.	P16
		Determining and accurately responding to regulatory status both inside and outside Japan	Obtained and responded to chemical regulations in Europe and information on labeling regulations for chemicals	○		
Logistics safety	Elimination of serious logistics accidents	Support for safe transportation of logistics contractors	Held a logistics safety meeting and implemented assessments for each company's activities	◎	Continued provision of safety guidance support for logistics contractors	P20
			Instituted joint emergency drills with logistics contractors		Determining transportation records and examining a reduction plan to prevent global warming	
Occupational health and safety	Reduction in rate of absenteeism due to personal injuries and illnesses	Improvement of guidance in cooperation with industrial physicians	Worker-days of absenteeism due to personal injury or illness totaled 1244 days.	○	Enhancement of the Health Care Committee	
		Reduction of traffic accidents by half	Reduction in at-fault road accidents	Traffic accidents totaled 15 (a reduction of 1 compared with fiscal 2004).	○	Reduction in at-fault accidents

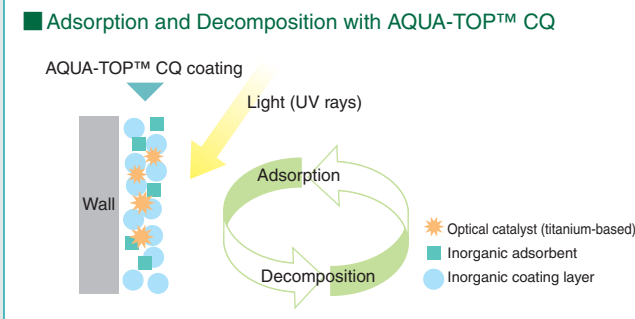
# Sumitomo Seika's Environment-Related Products

Our products are highly regarded and used in various industrial fields because of their functionality and quality. We have also been actively committed to supplying a variety of products that contribute to environmental protection and product safety. Some of our environment-related products are described in this section. We will continue to be committed to the development of products that contribute to society.

## Functional Polymers Division

### AQUA-TOP™ CQ (chemical quencher)

AQUA-TOP™ CQ is an indoor air quality improving paint that adsorbs and decomposes hazardous substances, including formaldehyde, that are regarded as causes of sick-house syndrome, as well as offensive odor-releasing substances.



## Gases Division

### Standard Gases for Analyzing the Atmosphere and Ecosystems

- [1] **HAPs standard gases**  
Standard gases for monitoring hazardous air pollutants
- [2] **PAMS standard gases**  
Standard gases for monitoring photochemical smog
- [3] **NMOG standard gases**  
Standard gases for compliance with new regulations for automotive exhaust gas analysis
- [4] **IAP standard gases**  
Standard gases for monitoring indoor air pollutants (sick-house syndrome inducing substances)
- [5] **ODOR standard gases**  
Standard gases for monitoring odorous substances
- [6] **Soil pollution standard gases**  
Standard gases for monitoring hazardous substances in soil

### General Purpose Standard Gases/JCSS (Japan Calibration Service System) Standard Gases

Standard gases for monitoring automotive exhaust gas and air pollution



### PSA Gas Generator

This PSA (Pressure Swing Adsorption) Gas Generator is used to supply oxygen for energy conservation, to recover greenhouse gases (CO<sub>2</sub> and methane) that contribute to global warming, and to generate hydrogen, which is expected to serve as a clean energy source.



### Combustion-Type Exhaust Gas Treatment System for the Semiconductor Industry: e-SHINE

This system has been specifically designed to decompose the greenhouse gas CF<sub>4</sub>. It realizes low energy consumption operation by incorporating a cooling-rinsing system into the combustion-decomposition process, which is executed with a high-temperature burner.



# Efforts toward Preventing Global Warming

The Kyoto Protocol, which entered into force in February 2005, stipulates that, during the First Commitment Period (2008–12), Japan is obliged to reduce greenhouse gas emissions by a total of 6% compared with the 1990 levels. Therefore, Japanese industry in general is required to continue implementing reductions that are more stringent; specifically, reduction targets for the chemical industry, to which Sumitomo Seika belongs, indicate a 10% reduction in energy basic unit rate relative to the 1990 levels by 2010. The chemical industry is taking steps to reduce greenhouse gas emissions through energy conservation.

Moreover, revisions to the Rationalization of Energy Use Law in 2005 stipulate energy conservation efforts in the transportation industry, which has remarkably increased its energy consumption in recent years.

## Sumitomo Seika's Energy Conservation Initiatives

As part of our program to reduce energy basic unit rate by 1% annually measured against the 1990 levels, we have been implementing resource and energy conservation initiatives.

### Past Major Initiatives

- Process improvements
- Introduction of cogeneration systems (Befu Works in 1989, Himeji Works in 2002)
- Conversion to alternative fuels
- Recovery of waste heat

We are also engaged in a variety of other efforts.

As a result, we have achieved a 30% improvement in energy basic unit rate relative to the 1990 levels.

However, improvements in our energy basic unit rate have gradually slowed year by year, and we were restricted to a 0.4% improvement in 2005 due to increased production volume.

In addition, we will rapidly devise and implement measures to reduce emissions of dinitrogen monoxide (marketed as surgical anesthetic), which is a greenhouse gas.

## Main Efforts in Fiscal 2005 for Global Warming Prevention

### ○ Befu Works

We have begun to review energy efficiency in all our Works. For example, we are working to determine the cause of unidentified steam loss and improve product yield. We installed flow meters in our piping network to monitor the steam consumption of each steam system beginning in fiscal 2005. However, we managed to reduce our energy basic unit rate by only 0.5% from the fiscal 2005 level.

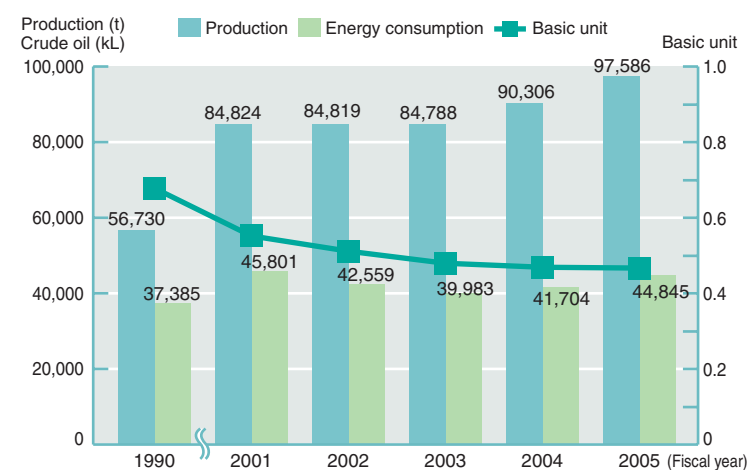
### ○ Himeji Works

Among other measures, we have taken steps to reduce steam consumption by our manufacturing equipment and reduce electric power for cooling; however, our basic unit rate has remained flat.

### ○ Chiba Works

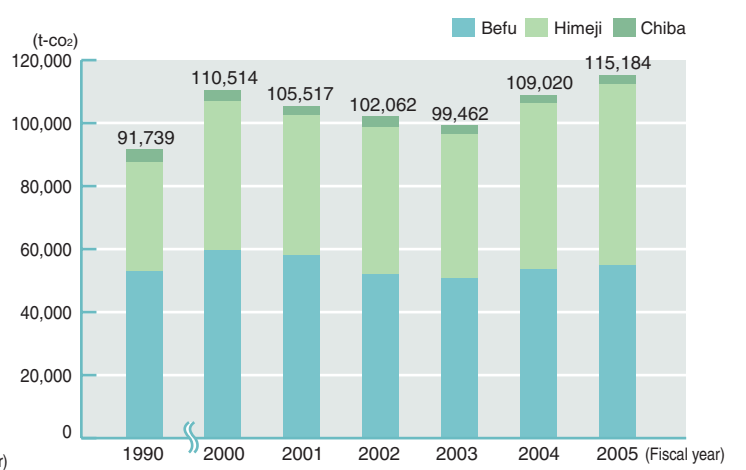
Although we have implemented a range of energy conservation measures, we did not attain our target energy basic unit rate due to a decline in yield arising from a change in raw materials.

### ■ Trend in Production and Energy Consumptions (energy, crude oil equivalent by volume)



Note: The basic unit for energy is an index calculated as the [total energy consumption as a crude oil equivalent]/[total production]. "Total production" is a concept established in the Law Regarding the Rationalization of Energy Use and is a value based on the energy amount used by a main product in which each product is calculated as an equivalent to this main product. (Actual product weight differs.)

### ■ CO<sub>2</sub> Emissions



Note: The CO<sub>2</sub> emissions value reported for fiscal 2005 has been corrected under instructions from Hyogo Prefecture following a review of the emissions factor.

# Efforts to Realize a Recycling-Oriented Society

The Basic Law for Establishing a Recycling-Based Society requires that the entire society strive to reduce waste emissions and ensure the effective utilization of resources by promoting the “3Rs” — reduce, reuse, and recycle.

## Commitment to Waste Reduction

At Sumitomo Seika, we are implementing the following initiatives:

1. Reducing waste emissions from our works by subjecting them to the following:

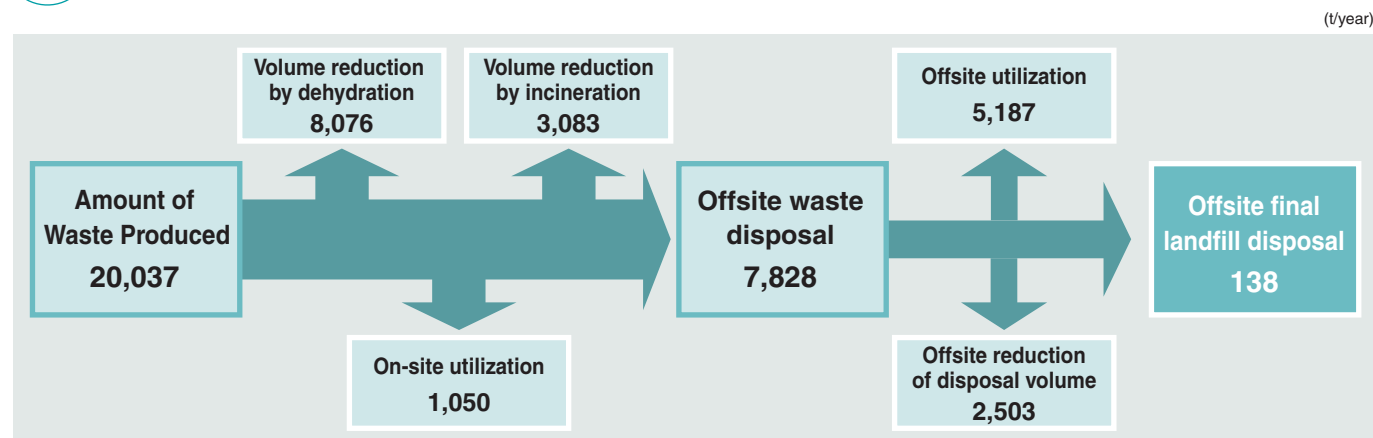
- 1) dehydration, separation and/or concentration;
- 2) utilization by the manufacturer;
- 3) detoxification (wastewater treatment), and/or volume reduction (incineration, etc.).

2. Promoting effective utilization of waste through the following practices when commissioning its disposal:

- 1) conversion to fuel (waste plastic, waste oil, etc.)
- 2) recycling (regenerative distillation processes of waste solvents or the like, reuse of metal scrap, and use as reducing agent)
- 3) effective utilization (recovery of steam generated through incineration, power generation, etc., and fertilization)

3. We will focus our efforts on reducing the amount of landfill waste disposal.

## Waste Disposal in Fiscal 2005



## Initiatives in Fiscal 2005

We focused on the following efforts:

- to reduce the volume of waste output from our Works; and
- to reduce the volume of landfill waste disposal.

As a result of these initiatives, we succeeded in achieving the planned reduction in waste volume landfilled; however, because of increased production, we were unable to achieve the reduction target for waste output from our Works. Therefore, we intended to adopt targets that are even more stringent by

- 1) requiring research on byproduct reduction during the product development stage; and
- 2) reducing waste generation by improving existing processes.



Waste-incinerating volume-reduction plant



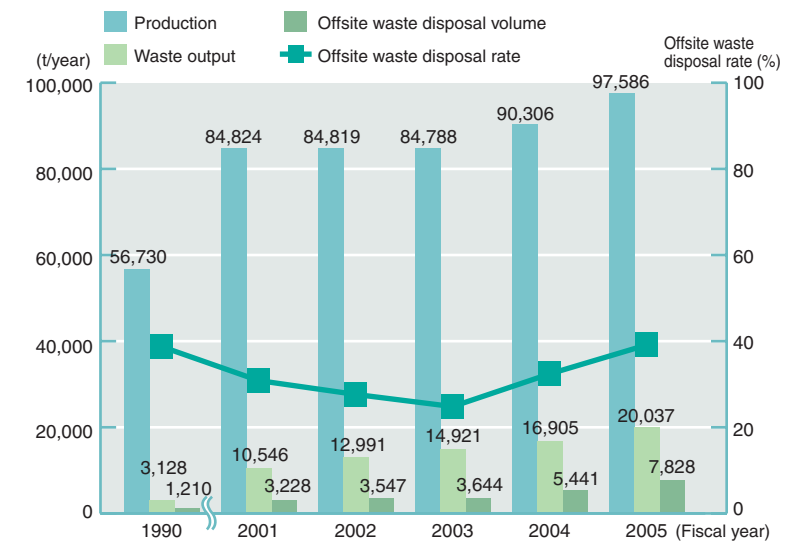
Collection of carefully classified wastes

## Amounts of Waste Produced and Offsite Waste Disposal

The amount of waste output was largely affected by an increase in production, resulting in a 13% increase from the 2005 levels. Although we endeavored to utilize this waste in-house and reduce its volume, the volume of waste commissioned for offsite waste disposal exceeded that of the previous year.

We will continue to work toward reducing the waste volume commissioned for offsite waste disposal in our plan for the fiscal year.

### Amounts of Production and Offsite Waste Disposal

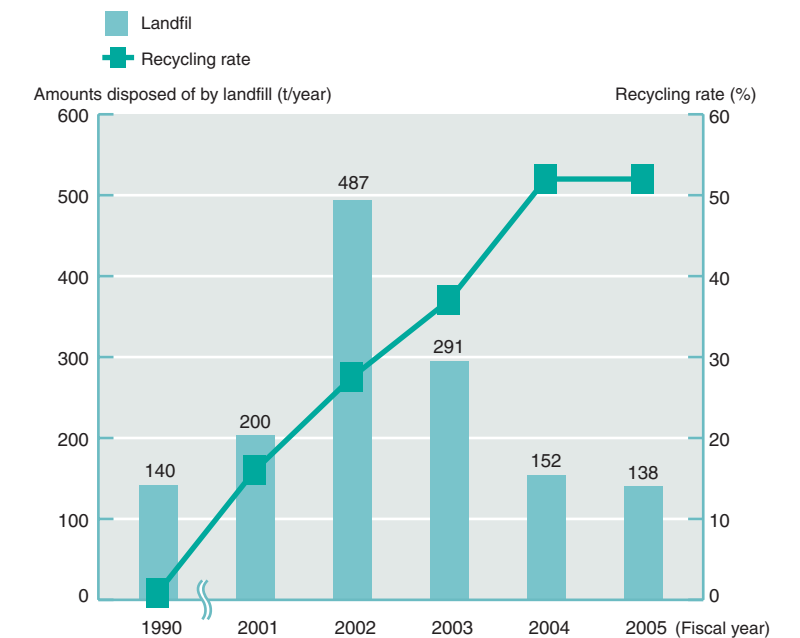


## Improvement of the Waste Recycling Rate (Utilization)

The most common wastes produced by Sumitomo Seika are waste-liquids. Though certain types of waste-liquids can be converted into useful products through regenerative distillation processes, in the past, most waste-liquids had been disposed of by incineration as a means of volume reduction. In recent years, however, the popular desire to become a recycling-oriented society has been growing. Therefore, in order to achieve positive utilization of our waste-liquids, we have been seeking agents that can utilize them as auxiliary fuels, as neutralizing and reducing agents, and in thermal recycling processes (utilization of waste heat).

As a result, we achieved a recycling rate of 52% in fiscal 2005, effectively utilizing about half our waste in some form.

### Recycling Rates and Amounts of Disposal by Landfill



## Reduction in Final Disposal by Landfill

Since fiscal 2004, we had been seeking an alternative measure to the disposal by landfill of the active sludge produced by our Himeji Works. In fiscal 2005, the scope of utilization of the active sludge as a raw material for cement and fertilizer greatly expanded. Thus, we significantly decreased the amount of active sludge that is disposed of by landfill.

## Environmental Performance Air Pollutant Reduction

Air pollution in major cities still poses serious problems. To address these problems, the Air Pollution Control Law of Japan stipulates emission control of sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter for factories and automobile exhaust gases. In addition, the Law Concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter was established and came into effect. Moreover, control of volatile organic compounds (VOC) was instituted in fiscal 2006.

### Commitment to Air Pollution Prevention

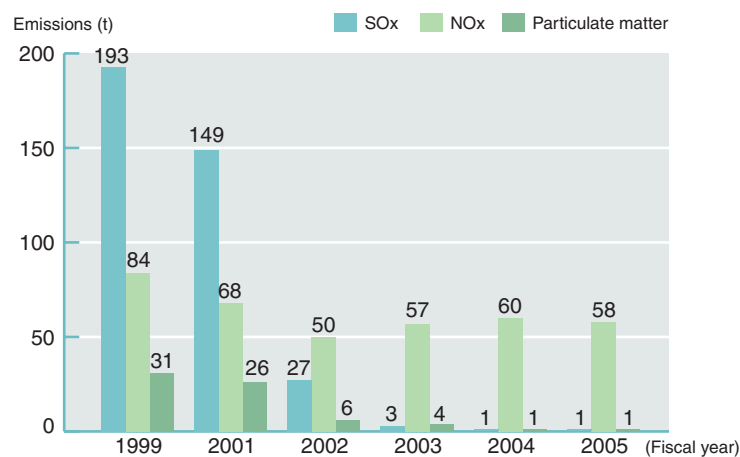
Sumitomo Seika has not only been operating its plants so that the amounts of air pollutants released by them do not exceed the control levels specified in the Air Pollution Control Law but has also been making efforts to reduce the amounts of these emissions in accordance with its voluntarily imposed control levels.

We significantly decreased the emissions of SOx, NOx, and particulate matter from our plants. Since fiscal 2004, we have

been making efforts to reduce emissions through fuel conversion and by replacing fire-fighting vehicles and other equipment.

In fiscal 2006, a new government ordinance to control volatile organic compounds (VOCs) came into effect. In compliance with this ordinance, we are now working to reduce emission of VOCs by 30% from fiscal 2000 levels by 2010.

### ■ Emissions of Three Air Pollutant Types



This cogeneration facility also contributes to reducing the amounts of SOx and particulate matter (Befu Works)

## Environmental Performance Efforts to Reduce Chemical Substance Emissions (1)

The Pollutant Release and Transfer Register (PRTR) Law was enacted in Japan in 1999 in an effort to control the amount of specified chemical substances released into the environment and to improve emission control methods. In compliance with this law, manufacturers handling chemical substances are required to report the amounts of chemicals they release and transfer and to remain committed to voluntary efforts to reduce emissions.

### Commitment to Reducing Chemical Emissions

In 1995, before the establishment of the PRTR Law, Sumitomo Seika initiated a survey of 480 chemical substances (chemical substances as specified by Japan Chemical Industry Association) to reduce emissions of these substances. Although the PRTR law specifies 354 chemical substances, our survey covers this larger number.

Moreover, beginning in fiscal 1995, as part of our Responsible Care activities, Sumitomo Seika has been voluntarily investigating the amounts of chemical substances that we release and transfer through our operations. In particular, we have been systematically reducing the emissions of 12 chemicals that the chemical industry intends to phase out. This effort has entailed improvements to manufacturing processes, substitution with alternative solvents, more thorough chemical recovery, and complete sealing of tanks.

As a result, we succeeded in reducing emissions beyond the primary reduction plan (30% reduction compared with fiscal 1995 levels) and secondary reduction plan (30% reduction compared with fiscal 1999 levels).

However, we have noticed a slight increasing trend in emissions of some substances as a result of increased production and for other reasons. The total amount of emissions, however, was greatly reduced. This year, we are planning to implement new measures to further reduce emissions. In addition, we will establish a new emissions reduction plan for volatile organic compounds (VOCs) and other chemical substances and will maintain our commitment to reducing emissions further.

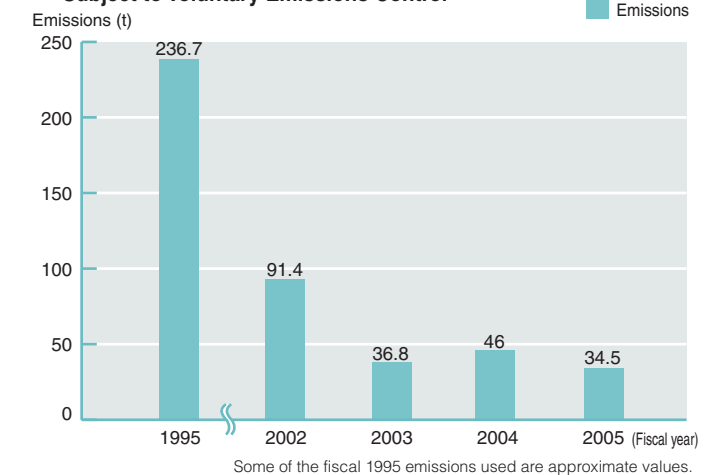
### Priority Substances Subject to Voluntary Emissions Control

The Central Environment Council of the Ministry of the Environment has prepared a list of 22 priority substances subject to voluntary control of emissions. The chemical industry, meanwhile, has identified 12 hazardous air pollutants and is now voluntarily controlling emissions of these substances. Sumitomo Seika now handles eight of these 12 substances.

We have prepared a reduction plan for the priority substances subject to voluntary emissions control and have been implementing this plan in order to reduce emissions of hazardous substances into the atmosphere. As a result, we stopped handling acrylonitrile. In addition, after having successfully reduced emissions of 1,2-dichloroethane, trichloroethylene, and ethylene oxide, we reduced total emissions by approximately 85% compared with fiscal 1995 levels.

In 2005, we reduced total emissions by 25% compared with the previous year. We will continue to make efforts to reduce emissions while developing our emissions control technology.

### ■ Transition in Emissions of Hazardous Air Pollutants Subject to Voluntary Emissions Control



### ■ Major Reduction Measures to the Present

- [1] Trichloroethylene: Enhancement of condensing-cooling recovery facility, extension of distillation time (1998, 2000, 2002)
- [2] Dichloromethane: Adoption of alternative solvents for certain products (1998, 2002, 2003)
- [3] 1,2-dichloroethane: Enhancement of recovery facility (1996, 1999, 2002)
- [4] Formaldehyde: Installation of equalization piping (1998, 2000)
- [5] Benzene: Disposal by incineration after modification of the exhaust gas line (2001)
- [6] Ethylene oxide: New charging scheme, installation of simple pollutant removal equipment (2001, 2003)
- [7] Acrylonitrile: Total ban on use (2003)
- [8] 1,3-butadiene: Execution of exhaust gas disposal by incineration (2003)



Exhaust gas pollutant removal equipment



## Efforts to Reduce Chemical Substance Emissions (2)

### Sumitomo Seika's Atmospheric Emissions Standards

No emission control or environmental standards have yet been specified for most of the substances that have been categorized as subject to the PRTR Law or as hazardous air pollutants.

This is because of the absence of any verified correlation between the amount emitted and the magnitude of the hazard presented by these substances. For this reason, chemical emissions manufacturers are required to reduce the emissions of such substances through voluntary determinations of emissions standards.

Therefore, Sumitomo Seika established voluntary emissions

standards by referring to the guidelines of the WHO and the EPA, and has been verifying at regular intervals that the emissions of certain chemical substance do not exceed their control values.

In accordance with these standards, we have been strictly controlling the emissions of potentially hazardous chemical substances.

(NOTE) WHO: World Health Organization  
EPA: U.S. Environmental Protection Agency

### Atmospheric Emissions Reduction Plan

We intend to carry out further emissions reductions in addition to those already implemented to date. In fiscal 2006, we plan to reduce emissions of trichloroethylene, 1,2-dichloroethane, and 1,3-butadiene. In addition, we will reduce emissions of toluene, n-hexane, and other VOCs.

Substance	Emissions (t)				
	1995	1999	2003	2004	2005
Acrylonitrile	9	8.8	2.5	—	—
Dichloromethane	70	24.8	3.5	11.7	4.2
1,2-dichloroethane	72	35.3	11.5	11.7	8.3
Tetrachloroethylene	1	1.2	0.5	0.7	0.6
Trichloroethylene	70	18.9	9.7	12.4	11.5
Ethylene oxide	4.7	4.7	3.7	3.2	3
1,3-butadiene	3	2.8	3.5	4.4	4.8
Benzene	4	4.1	0	0	0
Formaldehyde	3	2	1.9	1.9	2.1
<b>Total</b>	<b>236.7</b>	<b>102.6</b>	<b>36.8</b>	<b>46</b>	<b>34.5</b>



Gas recovery facility (Himeji Works)

### Atmospheric Emissions of Other Substances Subject to the PRTR Law Emissions (t)

Substance	2002	2003	2004	2005
Chloromethane	4.7	2.8	7.3	2.9
Acrylic acid	1.3	1.7	1.8	1.6
Xylene	2.5	3.4	2.7	2.8
Toluene	1.6	3.4	4.3	4.4
Ethylene glycol Monomethyl alcohol	1.5	1.5	1.5	2.8
Ethyl benzene	1.4	2.1	1.7	1.1
<b>Total</b>	<b>13</b>	<b>14.9</b>	<b>19.3</b>	<b>15.6</b>

### Dioxin Control Measures at Incineration Facilities

Sumitomo Seika's waste-liquid incineration facility at the Befu Works belongs in the small-scale incinerator furnace category. In compliance with the Law Concerning Special Measures against Dioxins and the Waste Management and Public

Cleansing Law, we have been measuring dioxin concentrations in the atmosphere, water and the working environment. The measurements were 10% or less than the control values.

## Measures to Reduce Water Pollution Impacts

Our Befu Works and Himeji Works are located at the Harima Industrial Area on the Seto Inland Sea. The mechanisms that cause red tide and the eutrophication of this wide stretch of closed water have been investigated. In addition, area-wide total pollutant impact control has been implemented here in order to decrease chemical oxygen demand (COD) and alleviate the overall impacts of pollutants such as nitrogen and phosphorus that adversely affect water quality.

### Pollutant Handling

To date, control of total COD has been implemented in five stages, but the environmental standard has not yet been satisfied due in part to the increase in household wastewater.

To address this problem, nitrogen and phosphorus pollutants have been added to the fifth control stage as a countermeasure to the eutrophication issue. The government is examining the sixth control stage for total COD and has

targeted fiscal 2009 as the completion date.

Sumitomo Seika is committed not only to fulfilling these standards in compliance with relevant laws and regulations but also to maintaining the quality of its wastewater through a system for constantly reporting the measurements of its wastewater to government authorities.

### Recent Enhancement of Measures against Wastewater

Recently, many manufacturers have been violating laws and regulations related to control of water and air pollution. Various regional communities, administrative organs, and others are now requesting manufacturers to adopt much more stringent wastewater controls.

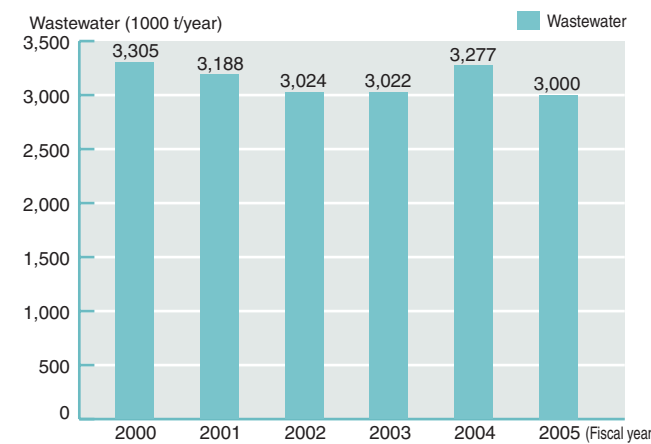
Since fiscal 2005, Sumitomo Seika has been implementing the following more stringent wastewater controls:

- 1) Installation of continuous nitrogen and phosphorus analyzers (actions required by relevant laws)
- 2) Installation of emergency shutoff valves (voluntary action)

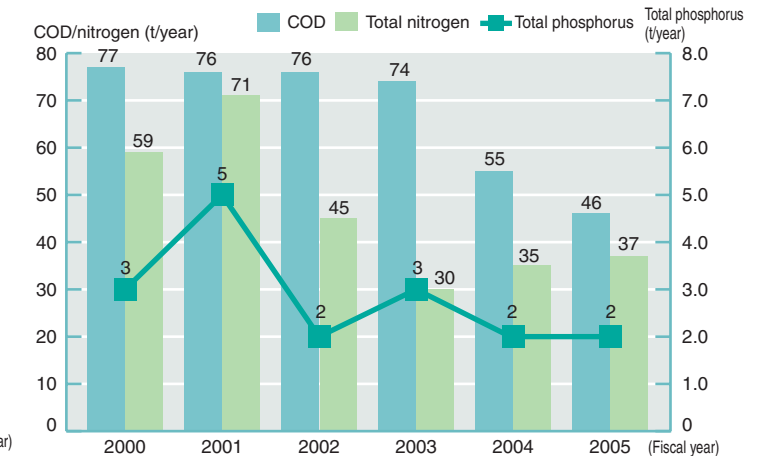
- 3) Installation of TOC measuring instrument for detection of organic substances in wastewater; ORP meter; and pH meter for determination of acidity or alkalinity (voluntary action)
- 4) Review of control standards (voluntary action)

Sumitomo Seika's water resource utilization results and transition in COD emissions are shown in the following graphs.

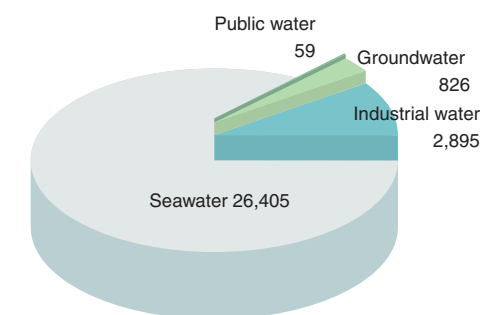
### Change in Wastewater Amounts



### Change in Water Pollution Impacts



### Water Resources Utilization (1000 t/year) in 2005



Wastewater treatment facility (Himeji Works)

# Safe & Preventive Performance Commitment to Chemicals Safety

Chemical substances are indispensable for providing abundance and comfort to modern society. However, certain chemical substances pose danger and can cause harm to people and the environment.

In the effort to ensure chemicals safety, learning the properties of chemicals and handling them carefully are critical.

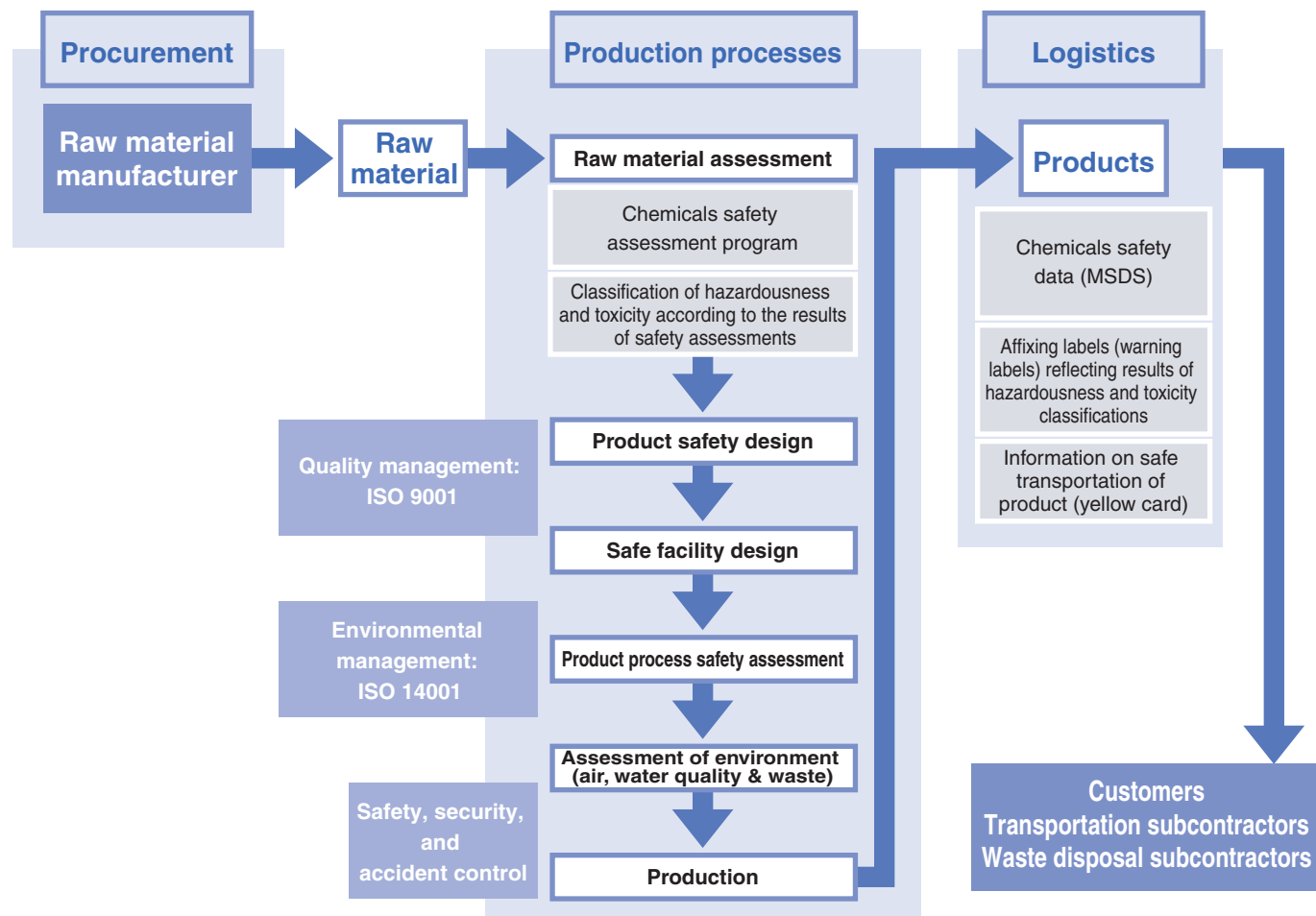
## Ensuring Chemicals Safety

To ensure chemicals safety, common international rules are now being formulated for the following items:

1. safety assessments of chemical substances;
2. classification and indication of hazardousness and toxicity; and
3. provision of product safety data.

Sumitomo Seika's chemicals safety assurance initiative is outlined in the following conceptual illustration.

At each stage, we are taking steps to ensure chemicals safety. In addition, we are providing the necessary information to relevant customers and subcontractors.



## Assessment of New Chemical Substances

For newly developed chemical substances, Sumitomo Seika will carry out biodegradation tests, mutagenicity tests, and

other safety tests. Last year, we carried out safety assessments on 23 chemical substances.

## Safety Survey on High Production Volume Chemical Substances

At the 1992 Earth Summit held in Rio, Brazil, the proposal was made that the acquisition of safety data for existing chemical substances should be promoted. Then, the Organization for Economic Cooperation and Development (OECD) decided to acquire safety data on chemical substances in use with annual national production levels in excess of 1,000 tons. Sumitomo Seika agreed when the Japan Chemical Industry Association (JCIA) expressed its intention to support this project, and voluntarily promised to acquire the data for six substances

(sulfolane, hydrogen sulfide, formaldehyde, dimethyl ether, sulfur dioxide, and sulfuryl chloride).

Last year, we acquired safety data on sulfolane, which was reviewed in Japan. In addition, the data was submitted to the OECD Nineteenth SIDS Initial Assessment Meeting (SIAM 19) where the environmental and human health hazards of the substance were assessed. As a result of the assessment, it was determined that sulfolane was not recognized as a hazard requiring urgent measures.

## Quality Assurance

Having acquired ISO 9001 certification, the international standard for quality assurance systems, Sumitomo Seika remains committed to "providing a sense of reliability and satisfaction to our customers" by implementing this quality assurance system in accordance with ISO 9001 guidelines. Furthermore, in manufacturing medical drugs and their

intermediates, we follow a comprehensive quality assurance practice that is compliant with the Current Good Manufacturing Practices (CGMP) for medical drug manufacturing and quality control that are specified by the U.S. Food and Drug Administration (FDA).

## Provision of Product Safety Information

Today, chemical substances are transported around the world. The United Nations, therefore, is seeking to establish a globally harmonized system to ensure information is provided in compliance with common rules. Known as the Globally Harmonized System of Classification and Labeling of Chemicals, or GHS, this system is scheduled for introduction in 2008.

Last year, Japan amended its Industrial Safety and Health

Law. This year, therefore, we have been requested to provide information in compliance with this international system.

To date, Sumitomo Seika has used product catalogs, material safety data sheets (MSDS), and warning labels as means of notifying our customers of the correct use of our chemical products. In the future, we will be further committed to providing labels and MSDSs that comply with the international rules for use of them.

## Warning Labels (Product Liability Labels)

In addition to MSDSs, we provide warning labels so that our customers can quickly judge the danger or hazard of

Sumitomo Seika products that the customers use.

### Warning Label Examples



# Safety and Accident Prevention Efforts

Sumitomo Seika has established the goal of zero injuries and zero accidents. Consequently, at the beginning of our revised management policy issued last year, we declared that "safety should be given the top priority"; we also communicated the importance of safety to all our employees.

During the past several years, in keeping with our safety policy and efforts to prevent accidents in our Works, we have been emphasizing the importance of verifying process safety and facility safety.

## Safety Initiatives Implemented in Fiscal 2005

Last year, we placed particular emphasis on the following initiatives.

- 1) Enhancement of process safety assessments (by introducing the HAZOP assessment method) under new or changed management
- 2) Verification of safety measures for highly hazardous or toxic facilities (implementation of process safety assessments)
- 3) Enhancement of inspection and maintenance of aging facilities and updating of aging facilities in accordance with the plan
- 4) Analysis of problem reports and adoption of appropriate countermeasures

### Pre-Assessments of Facilities

The following illustration shows the sequence of actions required to install a new facility or change an existing facility. As shown in the illustration, representatives of the production, design, and environmental safety divisions preliminarily assess

and discuss the safety of facilities to prevent accidents. In fiscal 2005, we adopted the HAZOP method for this assessment system in order to incorporate process safety assessment.



## Disaster Response Drills

Disaster response measures should be adopted and disaster response drills carried out to ensure safety and prevent disasters should at least minimize the damage resulting from a disaster. Our Himeji Works and Befu Works are subject to the Petrochemical Complex Disaster Prevention Act; therefore, we signed the Agreement on Regional Disaster Prevention and participated in regional disaster response drills in addition to our own disaster response drills. This approach has enabled us to construct a mutual support system with regional communities.

Comprehensive disaster response drill at the Hyogo Prefectural Petrochemical Complex



### Large Squirt Chemical Fire Truck

Our Himeji Works is subject to the Petrochemical Complex Disaster Prevention Act. Because this plant stores massive quantities of hazardous materials and compressed gases, it is required to maintain its own fire truck as part of its voluntary firefighting system.

Two years ago, we replaced a conventional chemical fire truck with the latest large squirt chemical fire truck. With its 22-meter extension, this truck has the capacity to spray 3,800 liters of water or 3,400 liters of chemical foam per minute.



New type of fire engine



Facility safety assessment meeting



Disaster response drills

# Commitment to Occupational Safety

In observing our policy that safety should be given top priority in our business activities, we have been taking steps to ensure the safety of both our workers and subcontractors.

The most important aspect of safety is to implement proper controls for the workplace; therefore, to ensure safety, we have been implementing a variety of activities at each workplace, including "hiyari-hatto detection" (detection of near-misses), "5S activities" (*seiri*, putting things in order; *seiton*, tidiness; *seisou*, cleaning; *seiketsu*, cleanliness; and *shitsuke*, training), "hazard prediction activity," and "yubisashi-koshou activity" (checking by using both the index finger and voice).

## Ensuring Safety

Between January and December 2005, we experienced one accident leading to suspension of operations and 10 accidents not leading to suspension of operations. Our operation suspension rate was 0.87 (versus a rate of 1.95 for all industries and 0.9 for the chemical industry). As a result, our record of no accidents resulting in suspension of operations since 1998 came to an end last year. In addition, we had several minor accidents such as falls.

In response to these circumstances, our top management decided to clearly show our workers the importance of safety. In keeping with our policy of affording top priority to safety, our top management established the target of achieving zero injuries and zero accidents.

To communicate this policy to all concerned, our president took the initiative of distributing this safety message to all our employees and to the employees of subcontractors working in our Works. In addition, he visited each facility on safety patrols and held safety gatherings so that management and employees would be made aware of the importance of safety.



Sumitomo Seika's president participating in a safety patrol



Life-saving drill



Workplace improvement through TPM



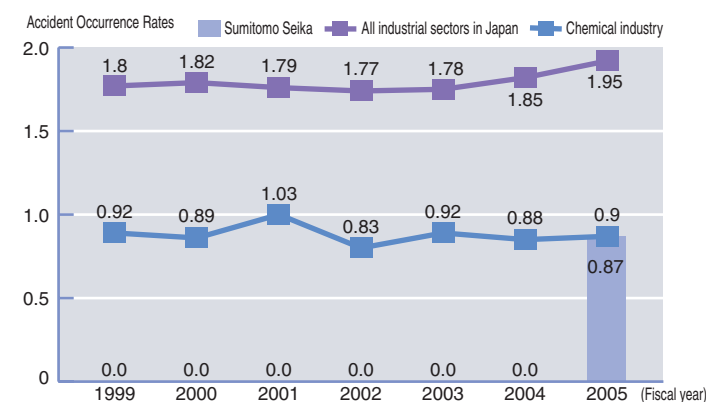
Rescue drill with respiration aid equipped

## Detecting Hazard Factors

In the current year, our safety activity plan is to detect latent hazard factors in each workplace and take necessary measures against each hazard factor detected. Each worker, therefore, is required to report the hazardousness of his or her work.

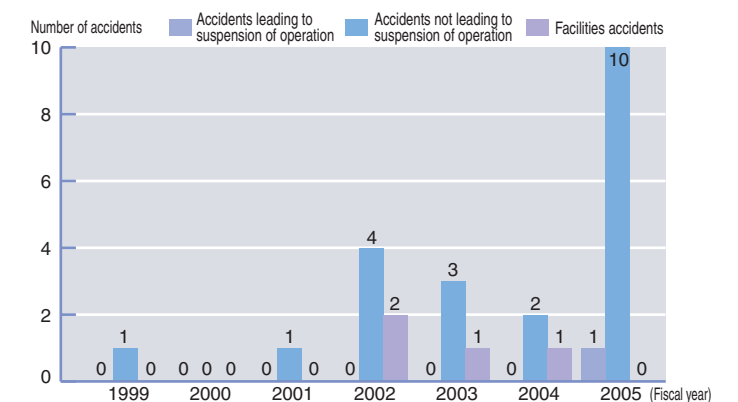
Following the classification of harmful substances, operations newly detected as hazardous should be reported. For these hazardous operations, we will determine priority orders and take all necessary measures to ensure worker safety.

### Comparison of Job-Related Accident Occurrence Rates in Japan



Accident occurrence rate = (number of deaths and injuries caused by job-related accidents)/(total work hours) x 1,000,000 hours  
The accident occurrence rate is for accidents that occurred in factories.

### Number of Job-Related Accidents (at factories)



## Commitment to Logistics Safety

Should an accident occur during the transport of chemical products, the environment could be damaged and the regional community could be subjected to a disaster scenario.

The safe transportation of our products is as important as safe production in our Works, but they differ in some ways. Safe transportation can be ensured only if we gain the cooperation of our transportation subcontractors.

### Our Efforts to Ensure Safe Transportation

For the above reasons, we convened a logistics safety meeting together with the participation of our transportation subcontractors. As we communicate our safe transportation

policy to our subcontractors they report to us with their safety activity plans and achievements. In this way, both parties are cooperating to ensure safe transportation.

### Provision of Safety Information

To ensure safety in product transportation, it is indispensable that we provide our transportation subcontractors with sufficient product information. For example, we must provide information such as the properties of the chemical substances, the first aid response to be given and the person or division to be contacted following an accident.

We provide this information by sending the product safety information (MSDS) and yellow cards (information on first aid required in an emergency) to the transportation subcontractors.

Drivers for our subcontractors are required to carry these yellow cards while transporting chemicals so that appropriate emergency measures can be taken.



Yellow cards that summarize accident countermeasures

### Supporting Safe Transportation by Subcontractors

To ensure drivers fully understand our products, we provide them with instruction on how to transport and move compressed gas products and how to store and control our products. Occasionally, we visit our subcontractors to provide

instruction. In addition, we carry out joint drills together with our subcontractors in order to train the drivers on how to report an accident and how to respond in an emergency, etc., so that they can minimize the risk of damage.

### Hazard Assessment for Substances Being Transported

Before transporting our products, we review the hazards that could arise from each chemical substance by referring to the standards of the National Fire Protection Association of the USA. These standards are based on three elements – health hazard, combustion hazard, and instability hazard.

Based on the results of our review, we determine the container construction, the transportation unit amount, the transportation route, and the subcontractor for transportation to assure safety during transportation.



Joint disaster response drill with transportation subcontractors

### Transportation Accident Relief Drills

As a member of the High Pressure Gases Regional Accident Prevention Association, Sumitomo Seika is participating in regional accident relief drills held at its plants to prepare for possible accidents as well as to develop a liaison network in preparation for response to emergency situations.



Transfer from transportation by lorry to safe JR cargo train

## Harmony with the Regional Community

Our management philosophy is to share our prosperity and maintain harmony with society. As a member of the regional community, we develop our business in a manner that enables us to grow together with the community. This approach enables us to gain the confidence of the residents of these communities. Therefore, we are committed to implementing environmental protection and disaster response initiatives. In addition, we are informing the regional community of our activities.

### Communication Activities with Local Citizens

In the past, we took various opportunities to publicize the results of our environmental protection initiatives among our neighbors in the community. For example, the Befu Works has been publicizing its activities at the annual Pollution Prevention Meeting held in Harima-cho, while the Himeji Works has also been highlighting its activities at the Pollution Prevention Meeting and at other opportunities.

In addition, as part of our Responsible Care activities, we hold a variety of meetings in cooperation with chemical companies in regional communities. This initiative enables us to maintain community dialog meetings.

In 2002, we held our first dialog meeting with residents of the regional community. In 2005, we held our second meeting in Himeji in order to talk with people in that community.

In that second meeting, we collected questionnaires that we had earlier distributed to local residents. This enabled us to obtain the residents' opinions on environmental protection and other issues.

We invited neighborhood community associations, administrative organs, corporate customers, and others to the meetings, where we explained our activities, answered various questions submitted on the questionnaires, and exchanged opinions. Our next meeting will be held in 2007.

In an effort to contribute to the regional communities, we opened our employee welfare facilities — such as our athletic fields, tennis courts, and gymnasium — to neighboring residents. In addition, we cleaned the area around our Works and participated in the Himeji Environmental Fair held annually by the City of Himeji in order to publicize our environmental protection activities. In this way, we participate in a wide range of events in an effort to contribute to our regional communities and to gain the goodwill of our neighbors.



Our gymnasium, available for the use of the community



Himeji Environmental Fair 2005



Community dialog meeting



Community clean-up campaign

### Responsible Care at Plants in Other Countries

We maintain two international production bases located in Singapore and Thailand.

We operate our international plants in compliance with the relevant laws of the corresponding countries; however, we also apply the environmental protection techniques and safety techniques we developed in Japan in these international plants.

Singapore requires stricter controls than does Japan: our Singapore plant is required to carry out safety assessments (HAZOP and the like).

The workforces in our international plants are varied. They have diverse religions, are of different races, and have different educational backgrounds. Under such conditions, safe operation of a plant can be a challenge, but these plants have succeeded in maintaining a clear record of zero accidents since the start of operation.



Safety meeting (left) at Sumitomo Seika Singapore Pte. Ltd. (above)