Responsible Care Report 2003

Responsible Care®

DAINIPPON INK & CHEMICALS

Responsible Care®

Principle and Policy for the Environment, Safety and Health

Principle

As a responsible corporate citizen, Dainippon Ink and Chemicals, Incorporated (DIC), recognizes that care for the environment, safety and health (ESH) is fundamental to the management of the Company. DIC is committed to the concept of sustainable development and contributes to society by creating environmentally sound products and technology.

Policy

1. We establish ESH-related objectives and targets and pursue continual progress.
2. We comply with laws, regulations and agreements relevant to ESH.
3. We consider the ESH implications of each of our products throughout their life cycles in accordance with the ideals of Responsible Care.
4. We instill in our employees a thorough understanding of this fundamental Principle and Policy.
5. We organize our operations so as to promote the safeguarding of the environment, safety and health and conduct audits to monitor progress throughout the Company.
6. We ensure that operations are conducted safely and materials are handled properly. We try to prevent environmental pollution and avoid affecting the environment negatively by recycling waste, conserving energy and other resources and using materials that are environmentally friendly.
7. We place the utmost importance on ESH-related considerations at all stages of the new product planning and production process.
8. We promote safety by providing customers with detailed instructions on the proper use and handling of all products.
9. In our overseas activities, we conduct environmental impact assessments and strictly observe local ESH regulations. In the absence of such regulations, we work with local officials and our business partners to develop environmental safeguards. We also follow this procedure when dealing with toxic materials, applying the same stringent standards for their handling as required in Japan. In addition, we promote the transfer of technology and know-how related to environmental protection.
10. We provide the public and appropriate authorities with ample information about our products and business activities so that they may have an accurate understanding of our efforts to promote environmental protection, safety and health.

The above Principle and Policy shall be available to all employees and to the general public. It is our goal that this Principle and Policy be followed at all DIC Group companies.

Kojo Akutsu

President and CEO

Established April 1, 1992 Revised February 1, 1996

A Message from the President

I am pleased and proud to present DIC's Responsible Care Report 2003. This report summarizes the results of our Environment, Safety and Health (ESH) protection activities during fiscal 2002, ended March 31, 2003.

DIC recognizes that ESH is fundamental to management and seeks to incorporate these concerns in all aspects of its activities. In 1992, we formulated an official Principle and Policy recognizing the importance of ESH. The Principle and Policy were reaffirmed in fiscal 1995, when we unveiled and began implementing our Responsible Care program. Since then, we have made substantial progress on several fronts, including reducing the environmental load, lowering consumption of energy and resources, minimizing the generation of industrial waste, improving control of chemical substances and eliminating accidents at our plants.

In addition to improving the environmental soundness of our production processes, we are committed to developing and offering environment-friendly products. Fiscal 2002 brought a number of notable achievements on both fronts. We formulated the DIC Green Procurement program, as a result of which we now incorporate environmental concerns into all aspects of our operations, from the purchase of raw materials to the provision of finished products. In the area of product development, we introduced internal guidelines for assessing and designating environment-friendly DIC products in the domestic market, in the belief that our ability to expand our lineup of environment-friendly offerings is essential to increasing corporate value.

I hope you will find this report informative. As always, we welcome and appreciate comments or advice from readers regarding our activities and the content of this report.

October 2003

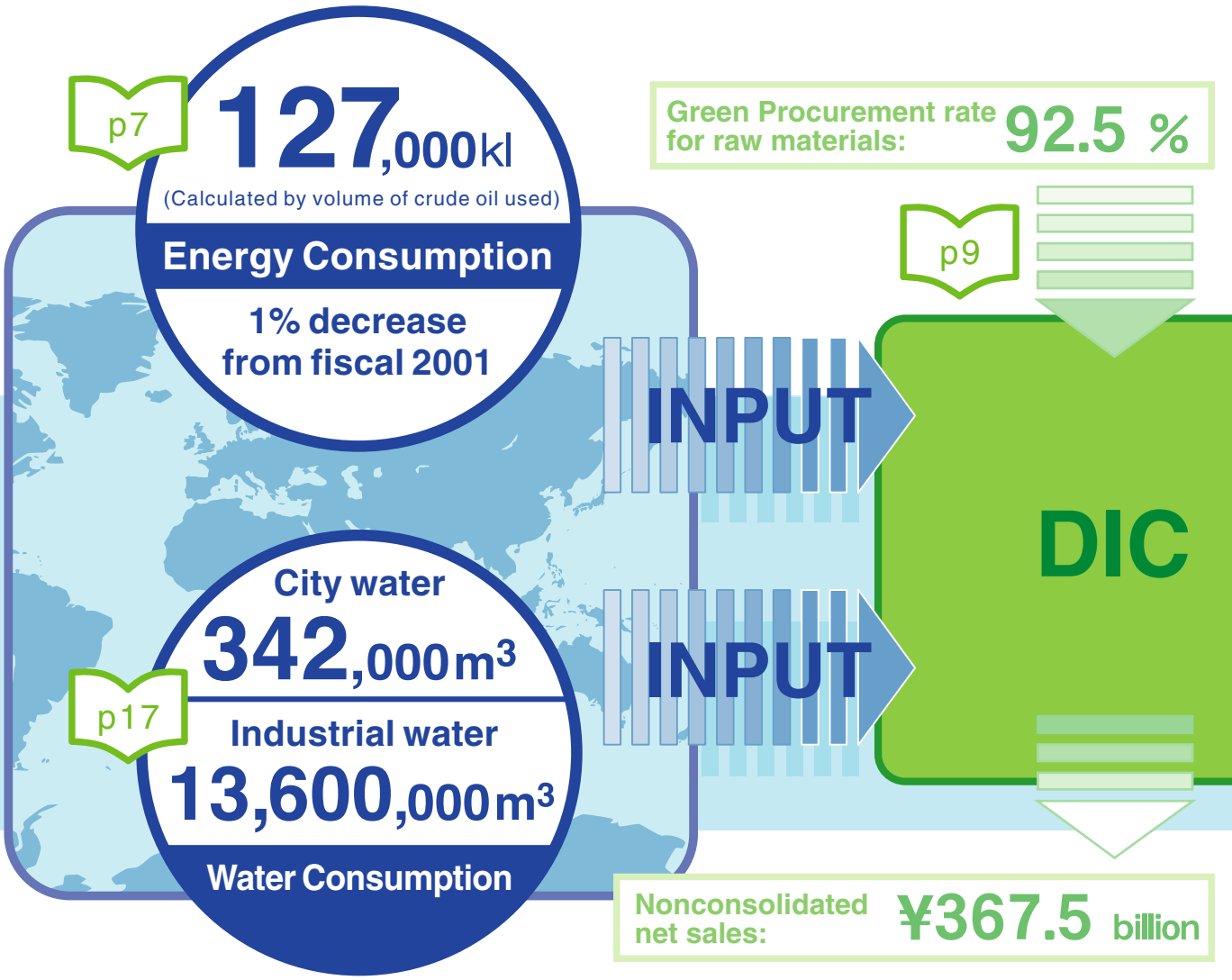
Kozo Okumura

President and CEO

Production Input-Output Flow for Fiscal 2002

Resources used in production (“input”) and emissions released during production that impact the environment (“output”)

※ Indicates relevant page of this report

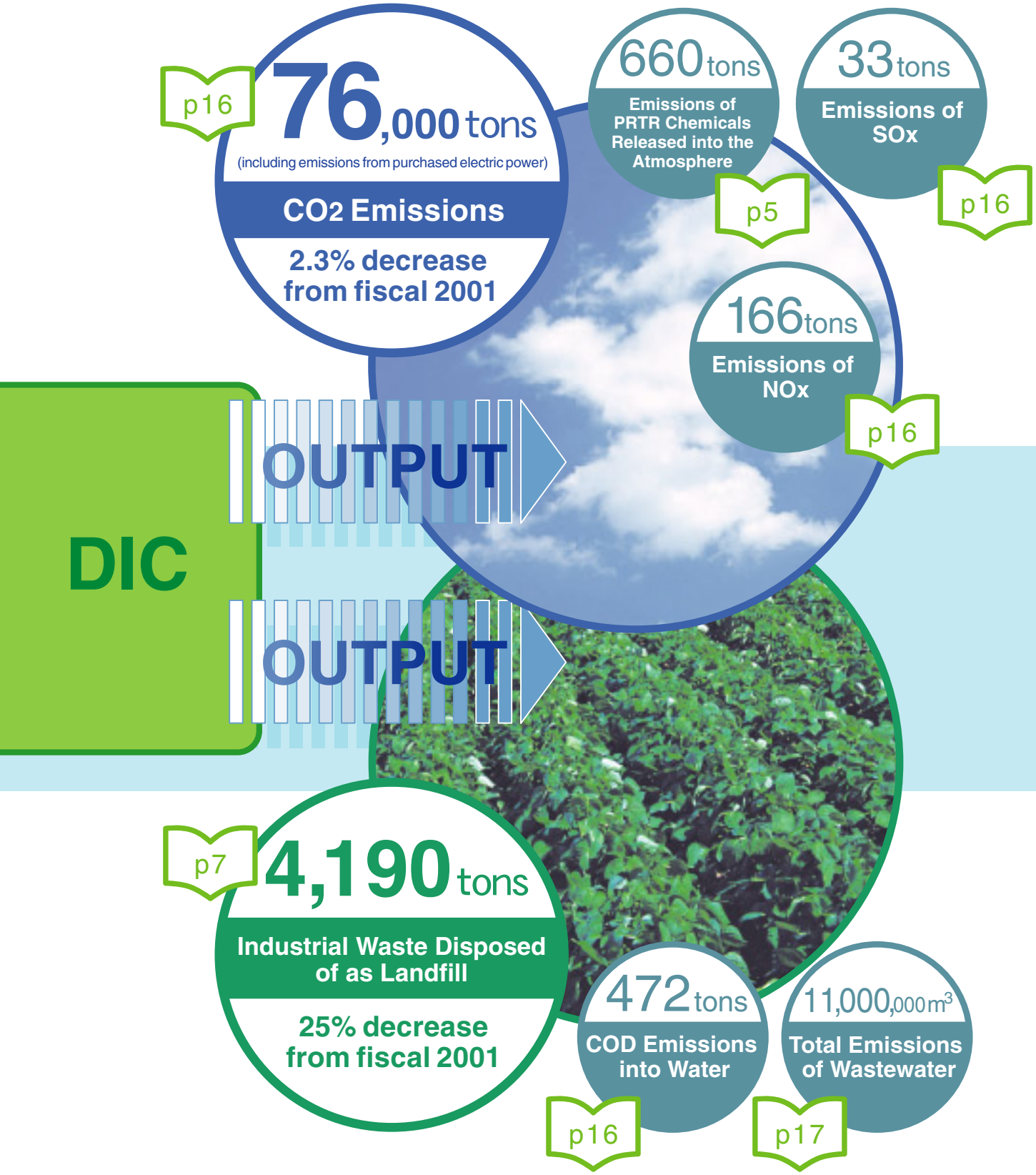


Contents

DIC’s *Responsible Care Report 2003* summarizes the activities and achievements of 14 plants, one R&D center and the production facilities of affiliated companies located within DIC plants in Japan.

ESH Activities

References


p16
76,000 tons
(including emissions from purchased electric power)
CO2 Emissions
2.3% decrease from fiscal 2001
660 tons
Emissions of PRTR Chemicals Released into the Atmosphere
p5
33 tons
Emissions of SOx
p16
166 tons
Emissions of NOx
p16
OUTPUT
DIC
OUTPUT
p7
4,190 tons
Industrial Waste Disposed of as Landfill
25% decrease from fiscal 2001
472 tons
COD Emissions into Water
p16
11,000,000 m3
Total Emissions of Wastewater
p17


660t

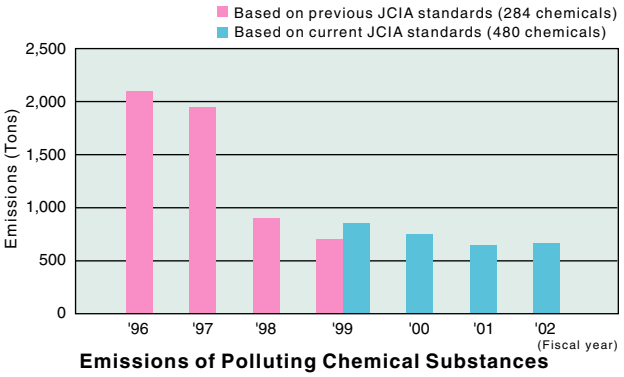
Reduction of Polluting Chemical Substance Emissions

Pollutant Release and Transfer Register (PRTR) Chemicals

In fiscal 2002, DIC's emissions into the atmosphere of chemicals targeted by the PRTR—a scheme to monitor and register emissions of polluting chemical substances—amounted to **660 tons**, up slightly from fiscal 2001. This increase was attributable to expanded production and a decrease in the efficiency of PRTR chemical processing facilities, which countered the positive impact of the consolidation of production facilities. DIC is currently taking steps to restore the efficiency of processing facilities and expects to register a decrease in PRTR chemical emissions in fiscal 2003.

The graph on the right shows DIC's entire PRTR chemical emissions since it began monitoring these emissions in 1996. The table below the graph indicates PRTR chemicals for which emissions by DIC in fiscal 2002 exceeded 10 tons.

Until fiscal 1999, PRTR chemicals numbered 284. In fiscal 1999, this number was doubled, to 480. This total includes 354 chemicals for which monitoring and registration are obligatory and 126 chemicals for which they are voluntary. In fiscal 2002, DIC used 118 of the 480 PRTR chemicals.



Emissions of Polluting Chemical Substances

Chemical	Volume Manufactured/Used	Volume Emitted
Ethyl acetate	12,437	110
Methyl ketone	10,407	100
Toluene	11,912	89
Xylene	7,130	65
Methyl alcohol	27,512	39
Methyl cellosolve	203	30
Propyl alcohol	3,362	29
N–methylpyrrolidone	208	23
HCFC–141b	385	22
N,N–dimethylformamide	7,200	21
2–methoxyethyl acetate	88	17
1,3–butadiene	1,784	16
Butyl alcohol	6,935	15
Ethylbenzene	1,909	11
Styrene	152,902	11

PRTR Chemicals with Emissions in Excess of 10 Tons in Fiscal 2002

Compliance with Dioxin Emission Control Regulations

In fiscal 2002, DIC had two incinerators that qualified as "specified facilities" under Japan's Law Concerning Special Measures Against Dioxins. Both facilities comply with legal standards governing dioxin levels in exhaust gas, wastewater and sludge. DIC previously had a third, smaller incinerator. This incinerator ceased operating in November 2002.

Use of Ozone-Depleting Chemical Substances

DIC currently uses a designated ozone-depleting chemical substance in some of its expandable urethane resins. By the end of fiscal 2003, however, DIC will switch to a system that uses an alternative to this chemical.

Case Study: **Reducing Chemical Substance Emissions**

DIC's Saitama Plant is primarily engaged in the production of special magnetic and adhesive tapes. Production of these tapes involves coating film or paper substrates and allowing the coated substrates to dry. Organic solvents released during this process are decomposed using catalyst burning and thermal oxidizing deodorization systems. The plant currently has five such systems installed, giving it a decomposition efficiency rate of between 98% and 99%. The newest of these systems, pictured here, uses a boiler to expel heat. As a consequence, it also contributes significantly to efforts to increase energy efficiency and lower energy use. The plant is also increasing use of water-based coatings, thereby reducing the volume of organic solvents it uses.

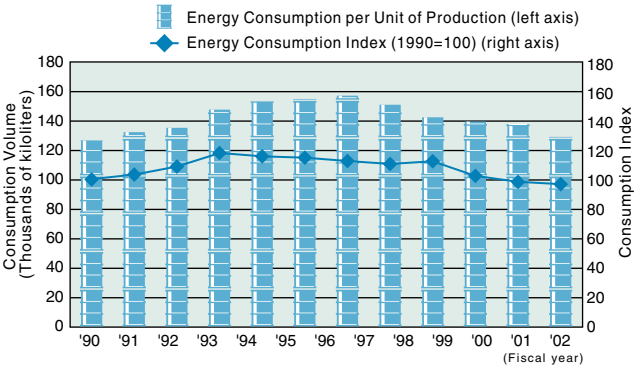

-1.1%

Reduction of Energy Consumption and Industrial Waste

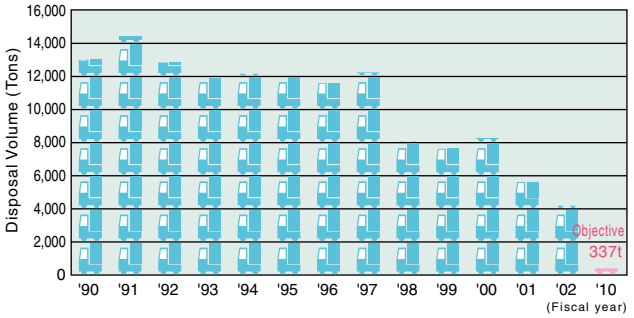
Energy Consumption

In fiscal 2002, DIC achieved a **1.1%** decrease in its absolute energy consumption, calculated in volume of crude oil used, to 127,000 kiloliters. The index of energy consumption per unit of production (fiscal 1990=100), was 93. The graph to the right shows DIC's absolute consumption and the consumption index from fiscal 1990 through fiscal 2002. The steady decrease in DIC's energy consumption is attributable to plant-level efforts to reduce energy consumption, the introduction of high-efficiency production equipment employing advanced energy-saving technologies, and the installation of cogeneration systems—an undertaking DIC commenced in fiscal 1996.

Notes:
1. Energy consumption calculated in volume of crude oil used is the total volume of all types of energy used, including electric power and crude petroleum.
2. Energy consumption per unit of production is the volume of energy consumed per ton of production.
3. The energy consumption index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year. Japan's chemical industry has set a goal for this index of 90 by fiscal 2010.
4. Cogeneration systems: These systems enable the simultaneous production of several types of energy using one primary fuel. DIC's cogeneration systems use such fuels as natural gas and kerosene to produce electricity and the waste heat from fuel combustion to produce steam.



Energy Consumption per Unit of Production (Fiscal 1990=100)



Volume of Industrial Waste Disposed of as Landfill by External Companies

Industrial Waste

DIC achieved a **25%** reduction in industrial waste disposed of as landfill by external companies in fiscal 2002, to 4,190 tons. The graph to the right illustrates the annual volume of industrial waste generated by DIC that has been disposed of in this manner since fiscal 1990. DIC has set a goal for industrial waste disposal of 5% below the fiscal 1999 level (337 tons) by fiscal 2010, and is implementing a variety of programs aimed at eventually reducing this amount to zero.

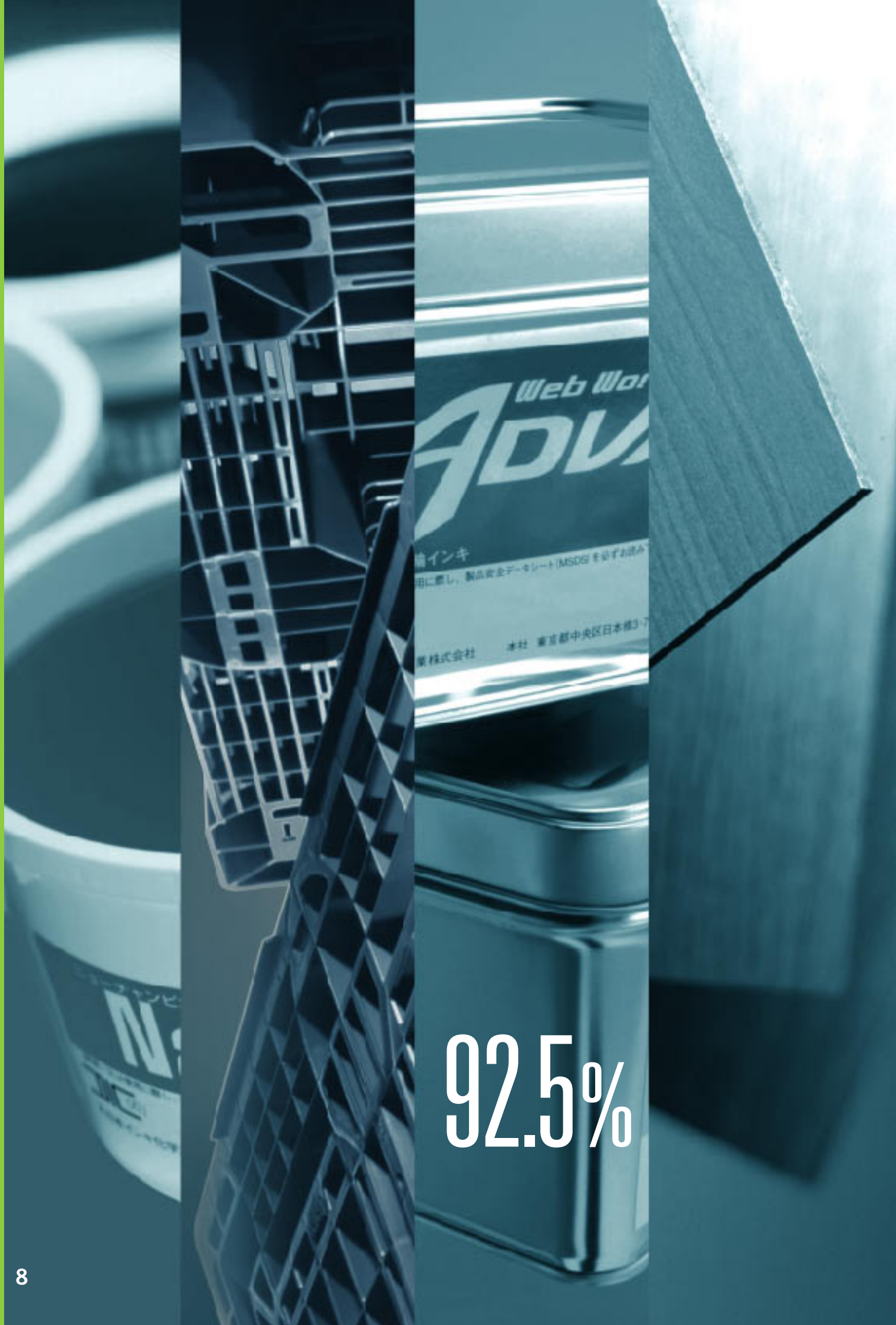
Note:
Industrial waste disposed of as landfill by external companies refers to the volume of industrial waste buried in landfill sites.

Case Study:
Reducing Energy Consumption

As of the fiscal 2002 year-end, DIC had installed cogeneration systems at its Chiba, Sakai, Kashima, Tokyo and Shiga plants. This resulted directly in an average decrease in energy consumption of 13% at these plants. The Chiba Plant's cogeneration system is pictured on the left.

Case Study:
Reducing Industrial Waste

At DIC's Mikawa Plant, 95% of the industrial waste disposed of as landfill is composed of contaminated sludge from wastewater processing facilities. In line with its plan to achieve zero emissions of industrial waste, the plant has launched a program to recycle sludge into fertilizer and fuel. In fiscal 2002, the plant introduced a new sludge decomposition system (pictured below), which is expected to facilitate an 80% reduction in the volume of sludge generated.


92.5%

Green Procurement and the Development of Environment-Friendly Products

Green Procurement

In fiscal 2002, DIC achieved a Green Procurement rate of **92.5%**, an increase of 3.5 percentage points from fiscal 2001. This means that 95.2% of raw materials used in DIC products in fiscal 2002 were procured from suppliers that meet the Company's Green Procurement standards. DIC will continue to encourage suppliers who do not meet these standards to implement changes and intends to achieve a 100% Green Procurement rate by the end of fiscal 2005.

DIC's Green Procurement Standards

Activities A supplier must either	**Materials Procured** A supplier must
• have earned ISO 14001 certification or have a management system in place and a definite schedule for applying for ISO 14001 certification, or • conduct its operations in accordance with the principal requirements for ISO 14001.	• supply materials that contain no prohibited substances, e.g., substances prohibited under the Labor Safety Hygiene Law or Type 1 substances prohibited under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances and • recycle containers or otherwise contribute to environmental preservation.

(Suppliers must meet standards in both columns to qualify.)

1. *Web World ADVAN*: Early Qualifier for New Eco-Mark

Heatset web offset ink *Web World ADVAN*—which qualifies under updated guidelines for Japan's Eco Mark—was launched ahead of the guidelines themselves, which were introduced in December 2002.

The new Eco Mark guidelines specify 45% as the maximum permissible content for petroleum-based solvents, which contain volatile organic compounds (VOCs). Generally, reduction of the solvent content of ink lengthens drying time. *Web World ADVAN*, however, features a new resin that eliminates the need for petroleum-based solvents while actually accelerating drying time.

Notes:
1. The Eco Mark is a designation assigned by the Japan Environment Association to products that contribute to environmental preservation through, for example, reduced environmental load.
2. Offset ink is a type of ink used in offset printing, a high-speed printing process in which a plate makes an inked impression on a rubber-blanketed cylinder, which in turn transfers it to paper fed from a roll. Most newspapers use offset printing.
3. VOCs are volatile organic chemicals released as gases from, among others, organic solvents.

Environment-Friendly Product Development

DIC is actively committed to the development and launch of environment-friendly products and markets many that bear Japan's Eco Mark. Accordingly, the Company recently introduced new internal guidelines for assessing and designating environment-friendly products. These guidelines encompass criteria in four categories, which are shown below. All product development efforts are currently conducted in line with these criteria, which DIC is confident will enable it to increase the market presence of its environment-friendly products.

① **Energy consumption**
(Reduction of energy consumption in production processes by, for example, increasing efficiency and fuel recovery rates and using thinner films and lighter materials)

② **Raw materials**
(Use of such environment-friendly raw materials as soybean oil)

③ **Risk**
(Reduction of risk through, for example, elimination of solvents or use of water base)

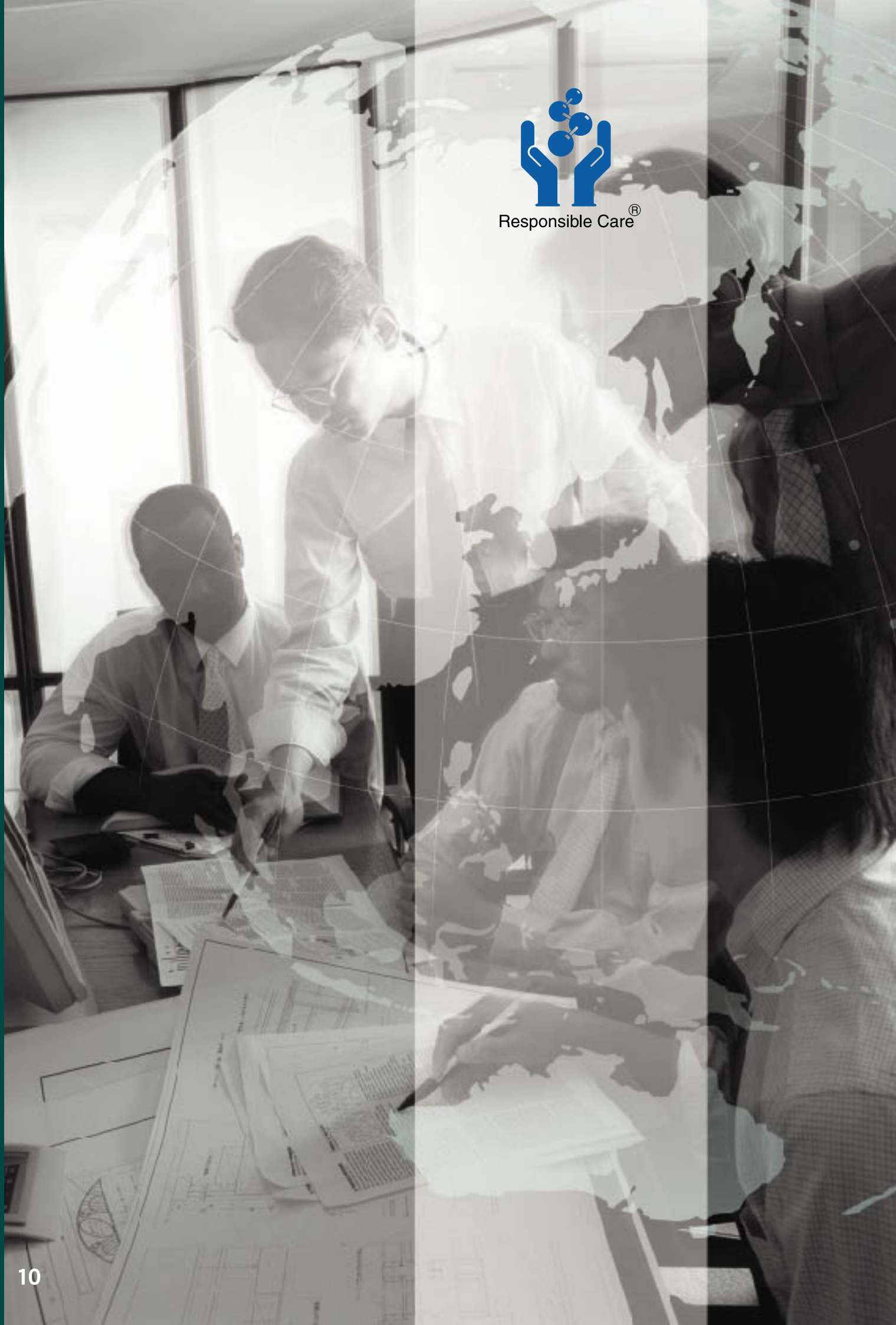
④ **Industrial waste generation**
(Decrease in industrial waste due to, for example, longer product life, reduction of chrome, elimination of cobalt dryers and facilitation of separation into combustible and noncombustible components)

DIC currently offers a broad range of environment-friendly products. For more information, visit the following page at DIC's web site:
http://www.dic.co.jp/products/envfprod/index.html

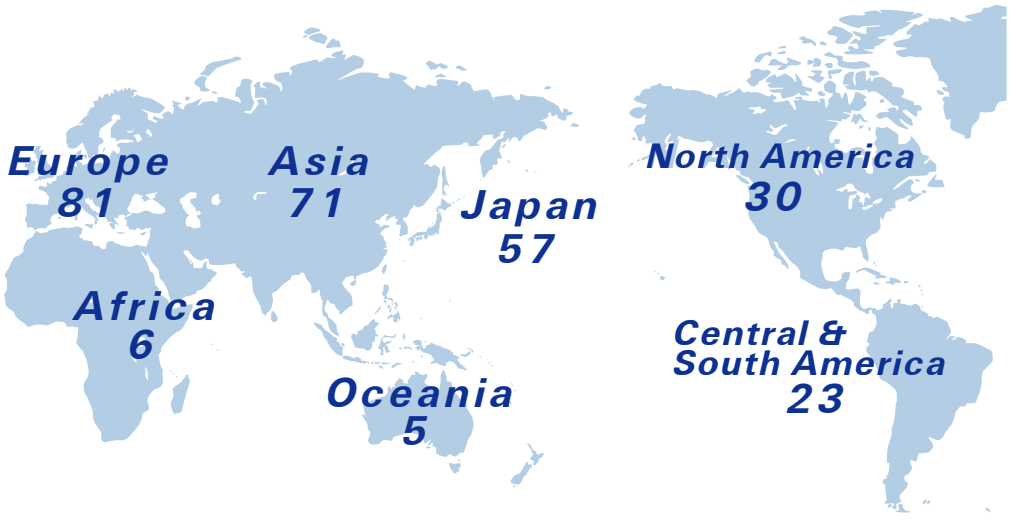
2. *Super Ecocycle* Pressure-Sensitive Adhesive Film with Environment-Friendly Substrate, Adhesive and Release Liner

Super Ecocycle is an innovative pressure-sensitive adhesive film developed with environmental considerations at all stages, including raw material selection, production and disposal. The waterborne dispersible emulsion adhesive used boasts a significantly lower VOC content than conventional adhesives, reducing solvent vapor emissions during production. *Super Ecocycle* also features a non-polyvinyl chloride (PVC) substrate, minimizing emissions of polluting gases during incineration. The release liner can be recycled into paper, eliminating the waste that usually results when adhesive films are used.

The *Super Ecocycle* image character, featured on a product pamphlet


Responsible Care®

ESH in Overseas Operations



ESH at Overseas DIC Group Companies

As of March 2003, the DIC Group encompassed 216 subsidiaries in 61 countries. Most of these companies, including core subsidiaries Sun Chemical, which heads a group of 86 companies, and Reichhold, which has 36 group companies, are actively engaged in ESH activities.

In Southeast Asia, DIC assists Group companies to conduct ESH assessments. DIC has also distributed English- and Chinese-language versions of publications used by domestic DIC Group companies—including *Safety Procedures for Static Electricity and Testing, Principles of Safe Conduct: Procedures and Attitudes for a Safe Workplace, Examples of Accidents and Examples of Emergency Situations*–*to affiliates in the region.*

ESH in International Transactions

In addition to adhering to the rules outlined in its *Safety Management for International Trade Manual*, DIC has prepared a checklist for employees traveling overseas on business to prevent the illegal export of products, regulated substances and technologies. DIC also keeps abreast of information on trafficking in prohibited substances and has established an internal mechanism to ensure adherence with international regulations.

Environment-related page from Sun Chemical's web site
(http://www.sunchemical.com/enviroment.html)

Environment-related page from Reichhold's web site
(http://www.reichhold.com/company/index.cfm?Id=RespCare)

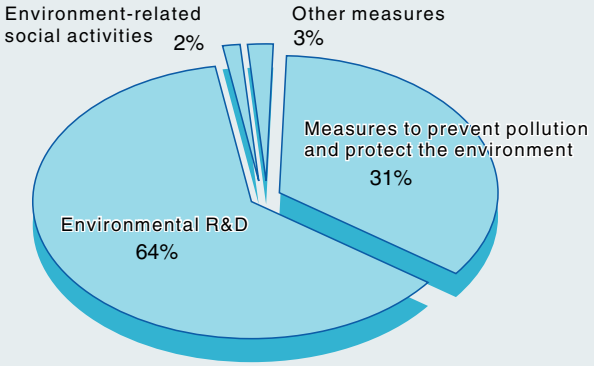
ESH Activities

ESH Costs

Prior to 1998, DIC disclosed environmental costs and safety- and health-related expenses and investments based on internal standards. Since then, however, the Company has disclosed environmental costs prepared in line with the *Preparation for Establishment of an Environmental Accounting System (2000 Report)*, published by Japan's Environment Agency, while it continues to calculate safety- and health-related expenses using internal standards.

1. Environmental Costs

Environment-related investments in fiscal 2002 totaled ¥886 million, while environment-related expenses were ¥11,143 million. These costs are broken down in Graph 1 and Tables 1 to 4.



Graph 1 Breakdown of Fiscal 2002 Environment-Related Expenses (¥11.1 billion)

Table 1 Environmental Costs (Investments and Expenses)

Millions of yen

Category	Scope	Investments	Expenses	Percentage of Total
1. Costs incurred through activities aimed at minimizing environmental load generated within the business area through production and sales activities (costs within the business area)	Costs related to the preservation of air and water quality, maintenance or improvement of waste disposal and recycling activities	307	3,438	31%
(a) Pollution prevention and environmental protection costs	Costs related to the preservation of air and water quality	99	1,542	
	• Operating/maintenance expenses related to activities aimed at curbing air pollution (370), global warming (200), water pollution (830), soil pollution prevention expenses (30) and other expenses Investments in air pollution prevention activities (30); water pollution prevention activities (68); other investments			
(b) Resource recycling costs	Costs related to the maintenance or improvement of energy consumption and internal and external waste disposal	208	1,896	
	• Operating/maintenance expenses for activities aimed at reducing energy and resource consumption (490), water consumption (4) and waste disposal (1,090); expenses related to the obligatory recycling of used merchandise (0.5) and other expenses • Investments in activities aimed at reducing energy consumption (202), waste disposal activities (5) and other investments			
2. Environmental costs related to management activities (management activity costs)	Costs related to environmental and safety promotion and education; environmental management and auditing related to acquisition of ISO 14001 certification	(Note 1)	322	3%
	• Personnel/administrative expenses (250), ISO 14001 maintenance expenses (9), environmental load measurement expenses (47) and other expenses			
3. Environmental costs related to technological activities (technological activity costs) (Note 2)	Expenses and investments related to the development of products that reduce environmental load (including personnel expenses)	575	7,151	64%
4. Environmental costs related to social activities (social activity costs)	Costs of plant and office greening programs and shared costs	4	159	2%
	• Internal maintenance expenses (40), fees to external organizations (114) and other expenses • Investments in greening programs (4)			
5. Costs related to damage inflicted on the environment (environmental damage costs)	Environmental clean-up and other expenses	0	73	
	• Levies on lake development (65) and other expenses			
Total		886	11,143	100%

Notes:
1. The investment portion of management activity costs is included in costs within the business area.
2. Technological activity costs are costs related to the development of products that reduce environmental load and include R&D costs of new products as well as to improving/customizing existing products.
3. These amounts represent costs incurred by DIC's domestic plants, R&D center and the production facilities of affiliated companies located within DIC plants.
4. The period covered is the fiscal year ended March 31, 2003.

Table 2 Environment-Related Facility Investments and Technology Costs

Millions of yen

Category	Composition	Expenses
Environment-related facility investments	Investments in facilities to reduce environmental load and lower energy and resource consumption; other investments	886
Percentage of total facility investments	35%	
Environment-related technology costs	Investments related to environmental conservation technologies and the development of products that reduce environmental load	7,726
Percentage of total technology costs	29%	

Table 3 Economic Effects of Environmental Conservation Measures

Millions of yen

Category	Expenses
Income earned by waste recycling	467
Treatment cost reduction through waste recycling	211
Cost reduction through energy conservation	218
Total	896

Table 4 Impact of Measures to Protect the Environment

	Environmental Load Index	
1. Impact of environmental protection measures within the business area	CO_2 emissions (calculated in tons of carbon) per unit of production	86% (fiscal 1990=100)
	SOx emissions per unit of production	15% (fiscal 1990=100)
	NOx emissions per unit of production	76% (fiscal 1990=100)
	Chemical oxygen demand (COD) emissions per unit of production	59% (fiscal 1990=100)
	Energy used (calculated in volume of crude oil used) per unit of production	93% (fiscal 1990=100)
	Emissions of solid wastes disposed of through burial by external companies	32% (of the fiscal 1990 level)
	55% (of the fiscal 1999 level)	(base year for reduction plan)
	The volume of solid waste disposed of through burial by external companies contracted for this purpose was 15 million tons less than in fiscal 1990. (Note 1)	
	Emissions of PRTR chemicals were 77% of the fiscal 1999 level. (Note 2)	77% (of the fiscal 1999 level)
2. Impact of upstream and downstream environmental protection measures	The reduction in CO_2 emissions realized as a result of modal shifts declined 736 tons. (Note 3)	

Notes:
1. The comparison of fees paid for the disposal of solid wastes through burial by external companies (fiscal 2001 actual payment basis) was calculated by subtracting the fiscal 2002 total from the fiscal 1990 total.
2. Figures represent emissions of PRTR chemicals based on a revised list of target chemicals that went into effect in fiscal 2001 and is retroactive to fiscal 1999. (The new list encompasses 480 chemicals, of which DIC uses 118.)
3. Calculations are based on standards set forth by the Japan Federation of Freight Industries in its *Report on Survey of Modal Shifts.* A significantly greater reduction in CO_2 emissions was realized through the use of large-scale transport modes in fiscal 2002.

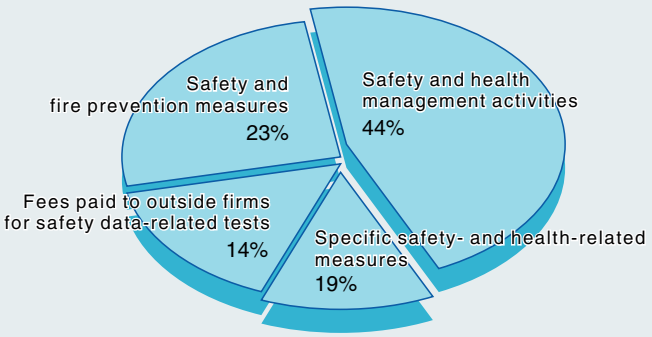
2. Safety- and Health-Related Costs

Safety- and health-related investments in fiscal 2002 totaled ¥238 million, while safety- and health-related expenses were ¥787 million. Graph 2 and Table 5 show a breakdown of these costs.

Table 5 Safety- and Health-Related Costs

Millions of yen

Category	Investments	Expenses	
Safety and health management costs		343	44%
(a) Safety management costs		328	
(b) Health management costs		15	
Specific safety- and health-related costs		153	19%
	231	496	
Fees paid to outside firms for safety data-related tests	0	111	14%
Safety and fire prevention costs	7	180	23%
Total	238	787	100%

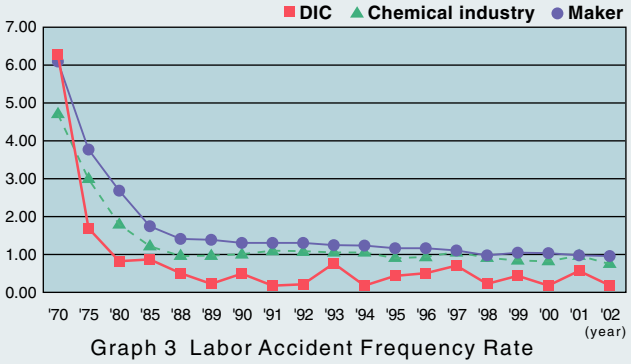


Graph 2 Breakdown of Safety- and Health-Related Expenses (¥787 million)

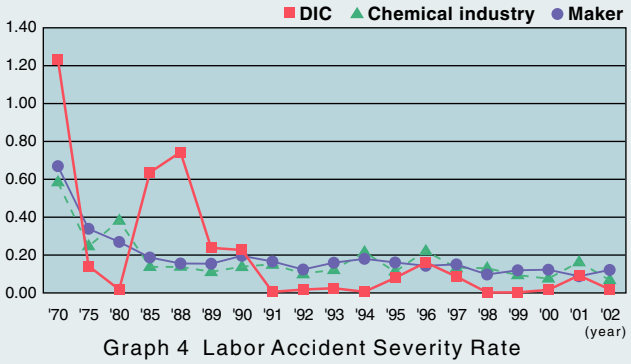
Safety and Health Record

During fiscal 2002, one accident resulting in an absence of more than one day was reported at DIC plants, one fewer than in the previous fiscal year. This accident happened when an employee's hand was caught in a rotor, causing broken fingers above the first joint. The labor accident frequency rate for the period was 0.14 and the labor accident severity rate was 0.014, compared with 0.52 and 0.093, respectively, in fiscal 2001.

Graphs 3 and 4, respectively, show DIC's labor accident frequency and severity rates from fiscal 1970 through fiscal 2002.



Graph 3 Labor Accident Frequency Rate



Graph 4 Labor Accident Severity Rate

Notes
Labor accidents = Accidents resulting in a suspension of operations.

Labor accident frequency rate = Number of injuries and deaths due to labor accidents per one million hours of labor. (Calculation: Number of injuries and deaths total work hours X 1,000,000) A labor accident frequency rate of 1.0, for example, corresponds to one accident per year in a workplace with 500 employees.

Labor accident severity rate = Number of work hours lost per 1,000 hours of labor. (Calculation: Number of days lost total work hours X 1,000) A labor accident severity rate of 0.1, for example, corresponds to 100 work hours lost per year in a workplace with 500 employees.

"Manufacturing industry" and "Chemical industry," as used in these figures, are classification used by the Ministry of Health, Labour and Welfare for reporting labor accident statistics and encompass, respectively, all manufacturers and all chemicals companies.

DIC was honored to receive several awards during fiscal 2002 in recognition of its superb safety record and accumulated experience in ensuring employee safety.

Tokyo Plant: Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)

Suita Plant: First Prize (Occupational Health) (Minister of Health, Labour and Welfare)

Safe Management of Chemical Substances

1. Preparation and Presentation of Safety Information on Chemical Substances

The Labor Safety Hygiene Law, Poisonous and Deleterious Substances Control Law, and Law Concerning the Reporting, etc, of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management call for manufacturers to prepare and distribute product material safety data sheets (MSDSs) for chemical substances sold in the Japanese market. DIC also prepares MSDSs in local languages for products sold in overseas markets. In fiscal 2002, DIC responded to requests from the electronics and electronic equipment industries for assistance in reinforcing safety control of substances to assist in their efforts to comply with DIC Green Procurement standards.

2. Internal Assessment of Chemical Substances and Production Processes and Management of Chemical Substance-Related Risks

DIC conducts internal assessments of chemical substances and production processes and promotes education regarding the appropriate use of chemical substances, reduction of chemical substances used, improvement of production processes and development of alternative substances. With the aim of reinforcing chemical substance-related risk management, DIC has also established an internal Chemical Substance Control Committee.

3. Safe Handling of Chemical Substances

The DIC quality assurance system allows the Company to immediately suspend production of a chemical substance and take appropriate steps, such as recalling products, should there be a danger of damage to the environment or the safety or health of employees or customers. No such incidents occurred in fiscal 2001.

4. ESH in R&D Activities

Employees engaged in R&D adhere to the guidelines pertaining to general safety and workplace safety education set forth in *Environment and Safety Guidelines for the R&D Department.*

5. New Businesses

Prior to preparing capital investment plans, DIC conducts an advance safety assessment aimed at enhancing the safety and reliability of management systems and reducing the margin for human error. Plants are subjected to process safety management (PSM) procedures.

History of DIC's Environment and Safety Program

(Year)

1973 Environment and Safety Response Department established under direct supervision of DIC's President

Internal safety audit conducted

1974 Environment and Safety Management Regulations and Working Regulations for Interim Countermeasures Department established

Inspection of environment and safety precautions at major plants undertaken

1977 Large-scale waste incinerator installed at Chiba Plant

1979 Procedures for Using New Chemicals established

Questionnaire on Characteristics of Chemicals established

1982 Guidelines for Training Inexperienced Workers (New Employees) established

1983 Professional sanitary guidance qualifications made mandatory for all management-level personnel

1984 Inspection of environment and safety precautions at branch offices, subbranches and sales offices launched

1985 *5 S Procedures and Attitudes for a Safe Workplace and Examples of Emergency Situations* published

Campaign to reinforce *5 S Procedures and Attitudes for a Safe Workplace* launched following several accidents

Guidelines for Implementing Management Directives on Key Environment and Safety Issues published

1987 Campaign to identify potential accidents launched

1988 *Environment and Safety Guidelines for the R&D Department* published

1990 Environment and Safety Management Regulations revised to include section on global environmental preservation

1992 Environment and Safety Philosophy formulated

Accident-free year achieved for entire Company

Guidelines for Preparing MSDSs established

1993 Voluntary Long-Term Environment and Safety Plan formulated

Guidelines for Preventing Accidents Caused by Static established

Chemical substance safety information officer appointed in each division

Various commemorative events held to mark 20th year of DIC's environment and safety program

1995 Public pledge to uphold principles of RC announced by DIC in its role as a founding member of Japan's RC movement

Guidelines for Crisis Management in the Event of an Accident established

Procedures and route for reporting and communicating instructions in the event of an accident established for domestic and overseas affiliates

The Aftermath of the Great Hanshin-Awaji Earthquake published, chronicling conditions following the disaster

RC audit system established

1996 Guidelines for Selling Chemical Products established

Safety and Quality Control Supervisor appointed at sales office

First Responsible Care annual report (1996) published

ISO 14001 certification obtained by Kashima Plant from Japan Quality Assurance Association

1997 Sakai, Amagasaki, Mikawa, Chiba, Tokyo, Saitama, Yokkaichi, Gunma and Komaki plants obtain ISO 14001 certification

1998 *PSM Guidelines* are published

Suita, Warabi and Nagoya plants obtain ISO 14001 certification

1999 PRTR chemical emission levels announced

2000 Registration and monitoring of chemical emissions modified in compliance with new PRTR system; environment-related costs and investments published in line with Environment Agency standards for environmental accounting

2001 Emission volumes for "priority" PRTR chemicals, i.e., those for which emissions exceed 10 tons, published

2002 *2002 Energy consumption and CO_2 Emission Volume* published

Tatebayashi Plant obtains ISO 14001 certification

Shiga Plant expands ISO 14001 certification to encompass entire plant

Environment and Safety Awards Received by DIC

(Year)		
1973	Amagasaki Plant	Effort Prize (Minister of Labour)
1974	Warabi Plant	Effort Prize (Minister of Labour)
1976	Warabi Plant	First Prize (Hygiene) (Minister of Labour)
1978	Mikawa Plant	Progress Prize (Minister of Labour)
	Sakai Plant	Progress Prize (Minister of Labour)
1979	Hokkaido Plant	Effort Prize (Minister of Labour)
	Mikawa Plant	Effort Prize (Minister of Labour)
1981	Tokyo Plant	Effort Prize (Minister of Labour)
1982	Mikawa Plant	First Prize (Safety) (Minister of Labour)
	Sakai Plant	Effort Prize (Minister of Labour)
1984	Tokyo Plant	First Prize (Hygiene) (Minister of Labour)
	Hokkaido Plant	First Prize (Hygiene) (Minister of Labour)
1986	Mikawa Plant	First Prize (Hygiene) (Minister of Labour)
1987	Sakai Plant	First Prize (Hygiene) (Minister of Labour)
1989	Amagasaki Plant	First Prize (Hygiene) (Minister of Labour)
1991	Sakai Plant	Progress Prize (Minister of Labour)
1992	Chiba Plant	Effort Prize (Minister of Labour)
	Sakai Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
1993	Chiba Plant	Top Plant for High-Pressure Gas Safety Commendation (Minister of International Trade and Industry)
	Mikawa Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
		Safety Effort Award, JCIA
1994	Suita Plant	Effort Prize (Minister of Labour)
	Chiba Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
1994	Sakai Plant	First Prize (Safety) (Minister of Labour)
	Warabi Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
1996	Saitama Plant	Progress Prize (Minister of Labor)
	Nagoya Plant	Effort Prize (Minister of Labor)
	Amagasaki Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Nagoya Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Fukuoka Plant	Special Commendation (JCIA)
1997	Mikawa Plant	Top Plant for High-Pressure Gas Safety Commendation (Minister of International Trade and Industry)
	Tokyo Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Tokyo Plant	Safety Award (JCIA)
1998	Fukuoka Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Ishikari Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
1999	Suita Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Kansai Polymer	
	Sakai Plant	Safety Effort Award (JCIA)
	Nagoya Plant	Progress Prize (Minister of Labor)
2000	Mikawa Plant	Safety Award (JCIA)
	Mikawa Plant	First Prize (Safety) (Minister of Health, Labour and Welfare)
2001	DIC	Chairman's Award (Japan Industrial Safety and Health Association)
2002	Tokyo Plant	Top Hazardous Substance Operation Commendation (Commissioner, Fire Defense Agency)
	Suita Plant	First Prize (Occupational Health) (Minister of Health, Labour and Welfare)

6. Safety during Transportation

DIC has established an emergency notification system to facilitate rapid responses to emergencies occurring during transportation of chemical substances. The system involves the distribution of transportation emergency response cards (“yellow cards”), which are given to drivers of container trucks, lorries and other specialized transport vehicles, as well as to general mixed-freight transport trucks. Yellow cards are currently distributed to nearly 100% of these drivers. DIC has recently taken steps to expand its use of large-scale transport modes, including Japan Rail containers, trailers and ships, enabling it to reduce energy consumption and CO2 emissions related to the transportation of chemical substances. In fiscal 2002, a reduction in CO2 emissions of 736 tons was realized through modal shifts.

Notes:
The term “modal shift” refers to a shift from trucks to large-scale transport modes. The reduction of CO_2 emissions owing to modal shifts is calculated according to uniform criteria.

Environmental Load Reduction (Emissions into Atmosphere and Water)

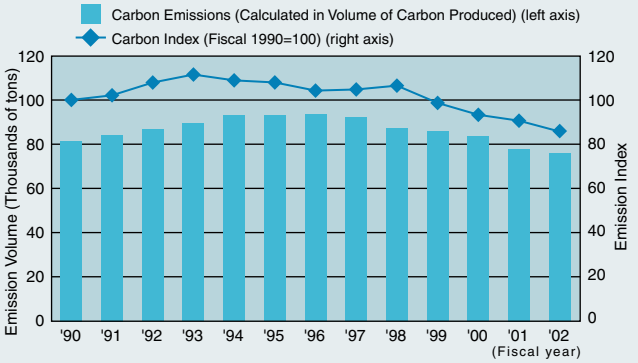
Key indicators are featured on page 17.

1. Emissions of CO_2, SOx, NOx and COD

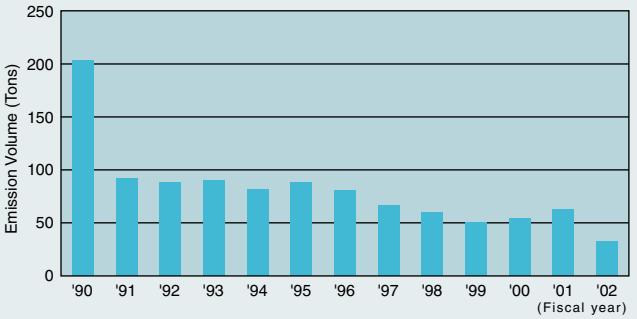
Graph 5 indicates DIC’s emissions of CO_2 from fiscal 1990 through fiscal 2002 (fiscal 1990=100). The absolute volume of emissions of CO_2 declined 2.3% in fiscal 2002. The index of energy consumption per unit of production (fiscal 1990=100), was 86.

CO_2 emitted through the combustion of energy during production accounts for approximately 90% of DIC’s total CO_2 emissions. Accordingly, DIC’s ongoing efforts to reduce energy consumption, which are outlined on page 9 of this report, have also led to significant decreases in CO_2 emissions.

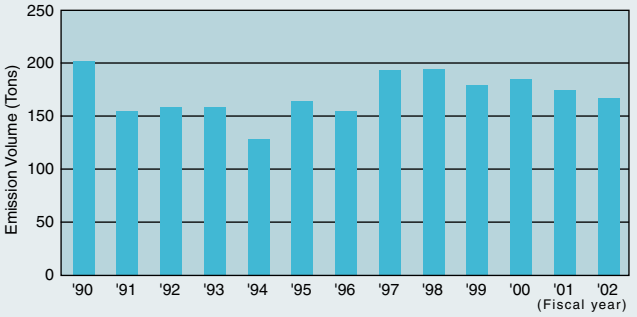
Graphs 6, 7 and 8 show DIC’s emissions of SOx, NOx and COD per unit (ton) of production from fiscal 1990 through fiscal 2002 (fiscal 1990=100). Although variations may be seen, DIC’s emissions of all three substances remain stable and well below legislated and stipulated levels.



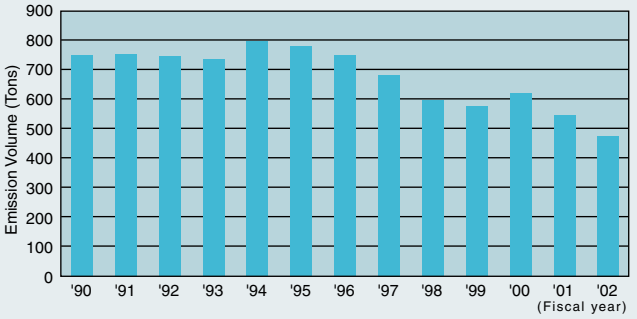
Graph 5 CO_2 Emission Volume and Emission Index (Fiscal 1990=100)



Graph 6 SOx Emission Volume and Emission Index (Fiscal 1990=100)



Graph 7 NOx Emission Volume and Emission Index (Fiscal 1990=100)



Graph 8 COD Emission Volume and Emission Index (Fiscal 1990=100)

Key Environmental Indicators

Table 6 Emissions of PRTR Chemicals

Fiscal year	1996	1997	1998	1999	2000	2001	2002
Based on previous JCIA standards (284 chemicals) (tons)	2,095	1,948	895	696	-	-	-
Based on current JCIA standards (480 chemicals) (tons)	-	-	-	856	749	652	660

Note: In fiscal 1996, the number of PRTR chemicals was 284. This was increased to 480 in fiscal 1999.

Table 7 Energy Consumption

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Energy consumption (calculated in volume of crude oil used) (1,000 kl)	127	132	136	148	154	155	157	151	142	139	138	129	127
Energy consumption per unit of production (liters/ ton)	138	142	150	160	157	156	153	151	154	141	136	133	128
Energy consumption index	100	103	109	116	114	113	111	110	112	103	99	97	93

Note: Energy consumption per unit of production is the volume of energy consumed per ton of production, calculated in volume of crude oil used. The energy consumption index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year.

Table 8 CO_2 Emissions

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
CO_2 emissions (calculated in volume of carbon produced)	81	84	86	89	93	93	93	92	87	86	83	78	76
CO_2 emissions per unit of production (kg/ton)	88	90	96	97	94	94	90	92	94	87	82	80	76
CO_2 emission index	100	102	108	110	107	106	103	104	107	98	93	91	86

Note: CO_2 emissions per unit of production is the volume of CO_2 emitted per ton of production, calculated in volume of carbon released. The CO_2 emission index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year.

Table 9 Volume of Industrial Waste Disposed of as Landfill

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Volume disposed of as landfill (tons)	12,948	14,345	12,764	11,870	12,157	11,882	11,508	12,247	8,069	7,552	7,981	5,582	4,190

Note: Industrial waste disposed of as landfill refers to the volume of industrial waste buried in landfill sites after reduction (through dessication or incineration) or directly.

Table 10 SOx Emissions

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SOx emissions (tons)	204	92	88	90	82	88	81	67	60	51	55	63	33
SOx emissions per unit of production (g/ton)	221	99	97	98	84	89	79	67	65	52	54	65	33
SOx emission index	100	45	44	44	38	40	36	30	30	23	24	30	15

Note: SOx emissions per unit of production is the volume of SOx emitted per ton of production, calculated in volume of carbon released. The SOx emission index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year.

Table 11 NOx Emissions

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
NOx emissions (tons)	202	154	158	157	127	164	154	193	194	179	185	174	166
NOx emissions per unit of production (g/ton)	219	166	175	171	130	165	150	193	210	181	182	180	166
NOx emission index	100	76	80	78	59	75	68	88	96	83	83	82	76

Note: NOx emissions per unit of production is the volume of NOx emitted per ton of production, calculated in volume of carbon released. The NOx emission index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year.

Table 12 Water Consumption and Wastewater Emissions

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Water consumption (city water) (1,000 m^3)	546	542	558	581	568	546	520	562	536	500	482	386	342
Water consumption (industrial water, others) (1,000 m^3)	19,769	19,603	20,205	19,569	18,945	18,585	17,917	17,647	16,766	16,708	17,178	14,918	13,608
Wastewater emissions (1,000 m^3)	14,431	14,310	14,750	14,827	14,523	14,830	14,367	14,294	13,124	13,172	13,771	11,813	11,005

Table 13 COD Emissions

Fiscal year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
COD emissions (tons)	745	753	740	730	792	775	745	677	594	571	615	545	472
COD emissions per unit of production (g/ton)	809	810	818	793	807	780	723	676	642	579	606	563	474
COD emission index	100	100	101	98	100	96	89	84	79	72	75	70	59

Note: COD emissions per unit of production is the volume of COD emitted per ton of production, calculated in volume of carbon released. The COD emission index compares the change in the rate of consumption per unit of production with fiscal 1990 as the base year.

Soil Analysis at Former Plant Sites

As part of its efforts to reorganize its domestic manufacturing network, DIC closed its Amagasaki and Warabi plants in September 2001 and March 2002, respectively. Subsequently, DIC conducted soil analyses at both sites in accordance with the Ministry of the Environment's guidelines for measuring soil and groundwater pollution, issued in 1999.

DIC's Responsible Care System

DIC has established a Responsible Care organization and internal audit committee to oversee its Responsible Care activities.

1. Responsible Care Organization

As the principal decision-making body for Responsible Care activities, DIC has established the Environment and Safety Conference, which includes the executive vice president, relevant directors, executives in charge of Responsible Care and general managers of relevant business divisions at the head office.

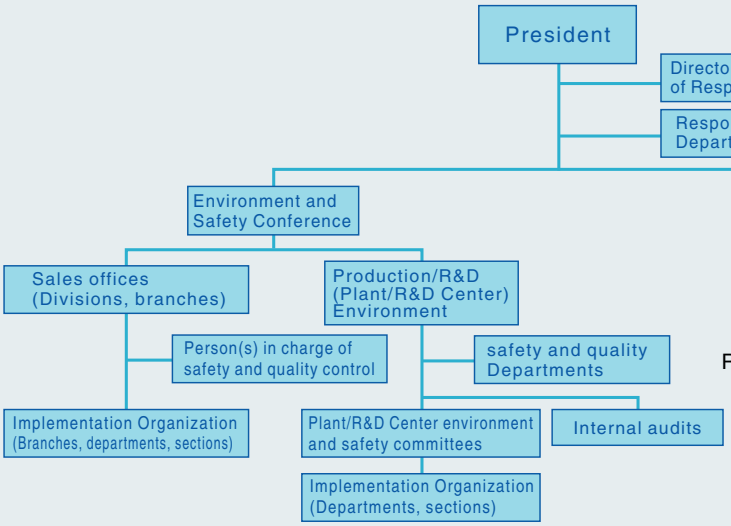
2. Implementation Organization at Plants, R&D Center and Sales Office

In line with the head office's directions, each of DIC's plants and at its R&D center have created an Environment and Safety Committee and assigned environment, safety and quality control personnel. DIC has also assigned a Safety and Quality Management Supervisor to each sales office.

All of DIC's principal plants have obtained ISO 14001 certification, the International Organization for Standardization's global benchmark for environmental management systems, allowing them to measure Responsible Care efforts against internationally accepted criteria. Certified plants are listed on page 19.

3. Internal Audit System

DIC's Responsible Care Review Committee comprises directors and general managers of relevant business divisions of the parent company and monitors the Responsible Care activities of each of DIC's plants and its R&D Center on an annual basis. Inspection teams led by top executives also monitor the Responsible Care activities of each plant through on-site audits. The general managers of each plant and the R&D Center also conduct periodic internal audits.



Responsible Care Organization

Responsible Care Audit Organization

Responsible Care®

ISO-Certified DIC Plants

Plant	Date of Certification	Certificate Number	Auditing Organization
Kashima Plant	July 1996	JQA-E-80005	JQA
Sakai Plant Mikawa Plant	September 1997	LRQA-771742	LRQA
Chiba Plant	December 1997	SGS/J/E113	SGS
Tokyo Plant	December 1997	JCQA-E-0201	JCQA
Saitama Plant	December 1997	JQA-E-90087	JQA
Yokkaichi Plant	February 1998	SGS-E12271	SGS
	April 2001	SGS/J/E129	
Gunma Plant	February 1998	JCQA-E-0013	JCQA
Komaki Plant	March 1998	JQA-E-90150	JQA
Suita Plant	July 1998	JQA-EM0193	JQA
Tatebayashi Plant	July 2002	JCQA-E-0394	JCQA
Shiga Plant	July 1999	JCQA-E-0074	JCQA

Note:
Auditing organization acronyms:
JQA : Japan Quality Assurance Organization
LRQA : Lloyd's Register Quality Assurance Limited
JCQA : Japan Chemical Quality Assurance Ltd.
SGS : SGS Japan Incorporated (SGS Yarsley International Certification Services Ltd.)

For more information, please contact individual plants.

Interaction with the Local Community

Copies of DIC's *Responsible Care Report 2002* were distributed to the head office, plants and the DIC Central Research Laboratories for internal use and for handing out to visitors to the Company. An English-language version of the report was also prepared for DIC Group companies overseas. Both the Japanese- and English-language reports can also be viewed by visiting DIC's web site at the following URL:
http://www.dic.co.jp/eng/rc/index.html

During fiscal 2002, DIC's Kashima, Chiba and Suita plants participated in the Japan Responsible Care Council's annual Responsible Care Conference. The Kashima Plant also produced its own Responsible Care report for the period and distributed it a presentation organized for the local community. DIC also invited local residents to visit its plants throughout Japan in an effort to promote effective communication. In addition, DIC employees nationwide volunteered their time in the community in a variety of capacities, including serving as automobile safety and sports instructors and participating in local clean-up efforts.

DIC Plants/R&D Center


Ishikari Plant


Gunma Plant


Tatebayashi Plant


Saitama Plant


Kashima Plant


Tokyo Plant


Chiba Plant


Mikawa Plant


Komaki Plant


Yokkaichi Plant

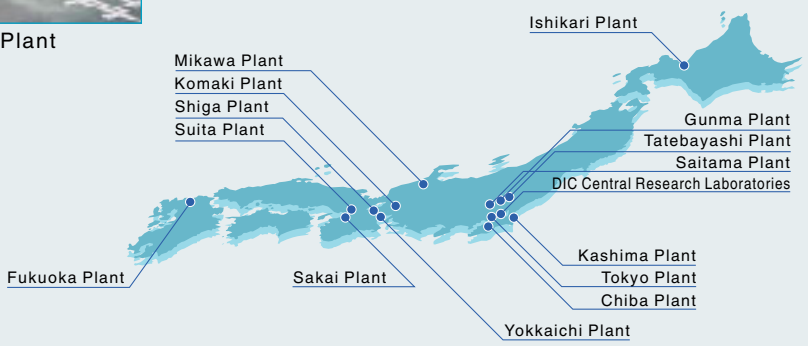

Shiga Plant


Suita Plant


Sakai Plant


Fukuoka Plant


DIC Central Research Laboratories



Plant Directory

Tokyo Plant
35-38, Sakashita 3-chome,
Itabashi-ku, Tokyo 174-8520, Japan
Tel : +81-3-3966-2111
Fax : +81-3-3965-4320

Suita Plant
34-1, Kishibe-Minami 3-chome,
Suita, Osaka 564-0011, Japan
Tel : +81-6-6381-9651
Fax : +81-6-6382-6133

Chiba Plant
12, Yawata-kaigandori,
Ichihara, Chiba 290-8585, Japan
Tel : +81-436-41-4112
Fax : +81-436-43-1059

Mikawa Plant
64-2, Aza Minato-machi-So,
Mikawa-machi, Ishikawa-gun,
Ishikawa 929-0296, Japan
Tel : +81-76-278-2332
Fax : +81-76-278-5354

Sakai Plant
3, Takasago 1-chome,
Takaishi, Osaka 591-0001, Japan
Tel : +81-72-268-3111
Fax : +81-72-268-1705

Kashima Plant
18, Oaza Higashi-Fukashiba,
Kamisu-machi, Kashima-gun,
Ibaraki 314-0193, Japan
Tel : +81-299-93-8111
Fax : +81-299-92-6384

Yokkaichi Plant
5, Kasumi 1-chome,
Yokkaichi, Mie 510-0011, Japan
Tel : +81-593-64-1151
Fax : +81-593-64-1620

Shiga Plant
373, Oaza Koujibukuro, Kousei-cho,
Kouka-gun, Shiga 520-3233, Japan
Tel : +81-748-72-3711
Fax : +81-748-72-2106

Komaki Plant
151-1, Aza Nagare, Oaza Shimosui,
Komaki, Aichi 485-0825, Japan
Tel : +81-568-75-2751
Fax : +81-568-73-4120

Ishikari Plant
22-3, Shinko-Minami 1-chome,
Ishikari, Hokkaido 061-3244, Japan
Tel : +81-133-64-4121
Fax : +81-133-64-7996

Saitama Plant
4472-1, Aza Shiku, Oaza Komuro,
Ina-machi, Kita-Adachi-gun,
Saitama 362-8577, Japan
Tel : +81-48-722-8211
Fax : +81-48-722-6087

Gunma Plant
1, Oaza Showa, Chiyoda-machi,
Oura-gun, Gunma 370-0723, Japan
Tel : +81-276-86-5811
Fax : +81-276-86-5824

Tatebayashi Plant
6023, Tobu-kogyodanchi,
Ohshima-cho, Tatebayashi,
Gunma 374-0001, Japan
Tel : +81-276-77-2461
Fax : +81-246-77-2468

R&D

DIC Central Research Laboratories
631, Sakato, Sakura,
Chiba 285-8668, Japan
Tel : +81-43-498-2121
Fax : +81-43-498-2229

Dainippon Ink and Chemicals, Incorporated
Corporate headquarters : DIC Building, 7-20, Nihonbashi 3-chome,
Chuo-ku, Tokyo 103-8233, Japan
Date of foundation : February 15, 1908
Date of incorporation : March 15, 1937
Paid-in capital : ¥82,423 million (as of March 31, 2003)
Number of employees : 4,853 (as of March 31, 2003)
Net sales : ¥367,455 million (fiscal 2002)

"Responsible Care" refers to activities pledged and carried out by companies that manufacture and/or handle chemical substances with the aim of protecting the environment, safety and health, and to the implementation and continual revision of measures to accomplish this aim throughout the entire life cycle of chemical products, from development and production through distribution and use to final consumption and disposal.

DAINIPPON INK & CHEMICALS

Environment, Safety & Quality Management Department
DAINIPPON INK AND CHEMICALS, INCORPORATED

DIC Building, 7-20, Nihonbashi 3-chome,
Chuo-ku, Tokyo 103-8233, Japan
Tel: +81-3-5203-7753 Fax: +81-3-3278-0253
URL: http://www.dic.co.jp/eng/rc/index.html

VOC成分ゼロ PRINTED WITH SOY INK Printed on nonwood paper (50% bagasse/35% recycled paper fibers) using DIC's Naturalith100 vegetable oil-based offset ink