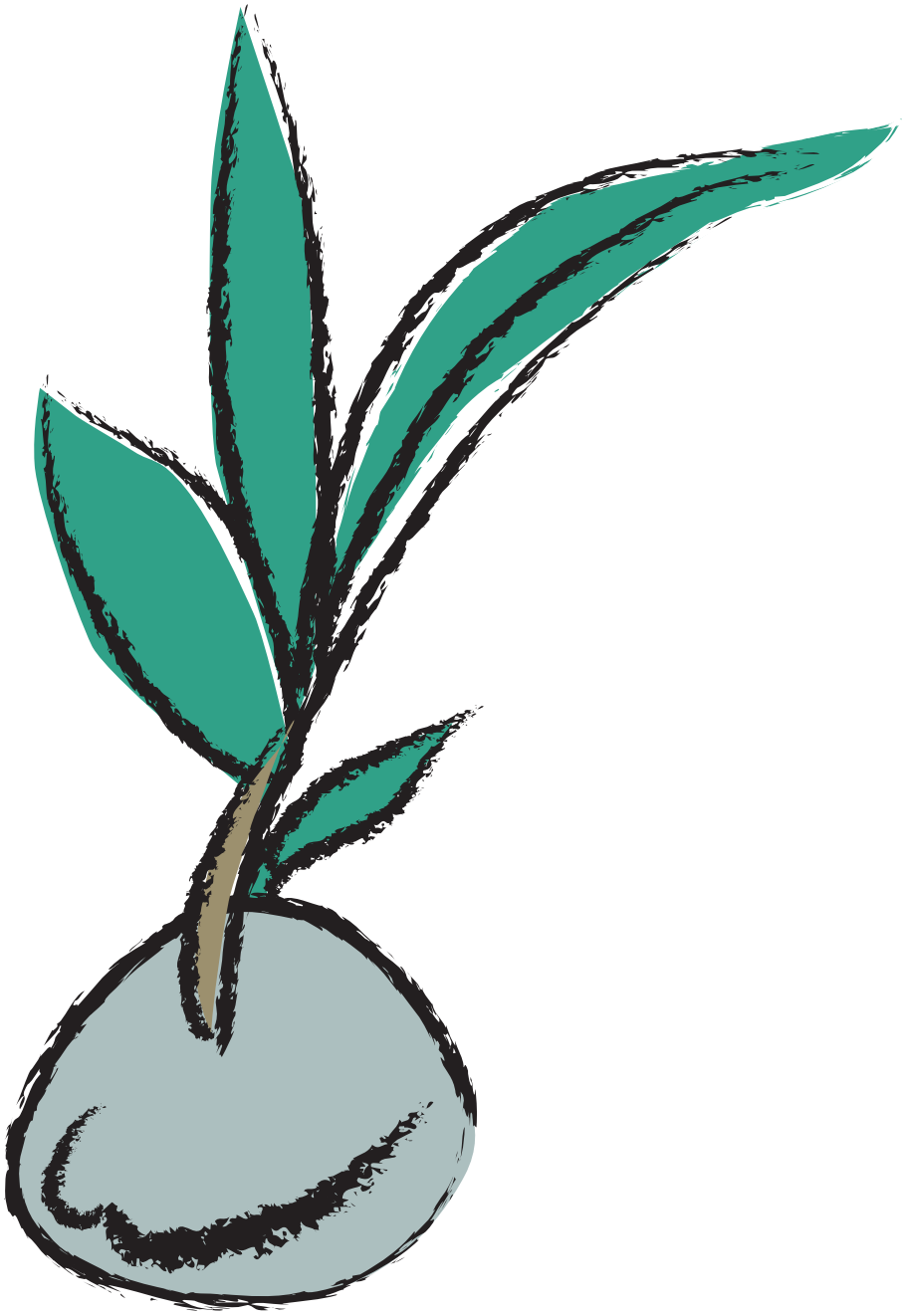
MGC's Responsible Care

ENVIRONMENTAL REPORT

2003 edition

Responsible Care®



三菱ガス化学株式会社

MITSUBISHI GAS CHEMICAL COMPANY, INC.

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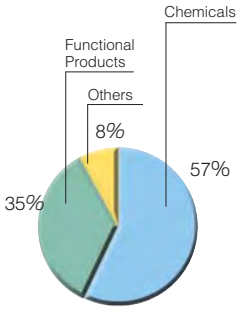
Profile of the Company

Name	MITSUBISHI GAS CHEMICAL COMPANY, INC.
Address	Mitsubishi Building, 5-2 Marunouchi 2-chome, Chiyoda-ku,Tokyo 100-8324, Japan
Established on	April 20, 1951
Capital	¥41.97 billion
Annual Turnover	¥214.6 billion (unconsolidated)
	¥312.1 billion (consolidated)
Annual Turnover per Products Segment (consolidated)	
Chemicals	¥176.7 billion
Functional Products	¥110.2 billion
Others	¥ 25.2 billion
Number of Employees	2,487 (unconsolidated)
	4,729 (consolidated)
Consolidated Affiliates	40 companies (consolidated)

Transition of Products Sales

Sales Ratio per Products Segment



Main Workplaces

●Branches

Osaka Branch	4-8 Shibata 1-chome, Kita-ku, Osaka 530-0012
Nagoya Branch	16-22 Meieki 3-chome, Nakamura-ku, Nagoya 450-0002

●Plants

Tokyo Plant	1-1 Niijuku 6-chome, Katsushika-ku, Tokyo 125-8601
Niigata Plant	3500 Matsuhama-cho, Niigata 950-3121
Mizushima Plant	3-10 Mizushima Kaigandori, Kurashiki 712-8525
Yokkaichi Plant	4-16 Hinagahigashi 2-chome, Yokkaichi 510-0886
Osaka Plant	2-12 Kamisucho, Toyonaka 561-0823
Yamakita Plant	950 Kishi,Yamakita-machi, Ashigarakami-gun, Kanagawa 258-0112
Kashima Plant	35 Higashi Wada, Kamisu-machi, Kashima-gun, Ibaraki 314-0102
Naniwa Plant	3-27 Funamachi 1-chome, Taisho-ku, Osaka 551-0022
Saga Plant	681-45 Oazakamikumakawa, Fuji-machi, Saga-gun, Saga 840-0512

●Research Laboratories

Corporate Research Laboratory	22 Wadai, Tsukuba 300-4247
Tokyo Research Laboratory	1-1 Niijuku 6-chome, Katsushika-ku, Tokyo 125-0051
Niigata Research Laboratory	182 Tayuhama Shinwari, Niigata 950-3112
Hiratsuka Research Laboratory	6-2 Higashiyawata 5-chome, Hiratsuka 254-0016

Main Products

●NATURAL GAS CHEMICALS COMPANY	●AROMATIC CHEMICALS COMPANY	●SPECIALTY CHEMICALS COMPANY	●INFORMATION & ADVANCED MATERIALS COMPANY
Methanol	Xylenes	Hydrogen peroxide	Epoxy・Glass BT resin copper clad laminates
Formalin	Metaxylylene diamine	Hydrazine hydrate	Materials for multi-layer print circuit boards
Ammonia	Alkyl benzaldehyde	Sodium percarbonate	BT resin
Methylamines	Trimellitic dianhydride	Persulphates	AGELESS (Oxygen absorber)
Methyl methacrylates	Pyromellitic dianhydride	Sodium hydrosulfite	AGELESS・OMAC
Methacrylates	Nylon-MXD6	Chemicals for electronics industries	AnaeroPack
Polyols	Phthalic anhydride	Plastic lens monomer	RP System and RP Agent
Dimethyl ether	Purified terephthalic acid	Polycarbonate resin (lupilon)	Magnetic garnet single crystal
Ubidecarenone	Purified isophthalic acid	Polyacetal resin (lupital)	

Message from the President

The irreplaceable earth, where we human beings live, is screaming out. It is attributable to volume consumption of resources and mass disposal of redundant articles committed by human beings. We must prevent by all means our planet from falling in an irreparable status by leaving such environment disrupting deeds as they are, neglecting the autopurification capacity of the earth.

We are convinced that it is the mission of our chemical industries to be firmly aware of the necessity of, and implement the structuring of a sustainable recycling-based society,by supplying safer products to society through our production activities with least environmental loads based on our environmentally friendly research and development.

We, at Mitsubishi Gas Chemical Company, Inc., hold our management philosophy, “to contribute to the development and peace of society through the creation of a diverse range of value based on chemistry”, and also strongly consider that “to ensure safety and environmental friendliness” as the important pillars in our business management. We are always working hard to meet social expectation by developing new and innovative materials in line with our “management philosophy” and “safety and environmental consideration”.

Dimethyl ether, relied on worldwide as next generation clean fuel; MX Nylon, with high oxygen gas barrier property to prevent foodstuff from oxidization, and widely used in the world as environment-protecting resin which does not generate chlorine gas during combustion; OR-SON AT, a drainage treatment agent, enables decomposition of organic chemical substances which was difficult to be biodegraded conventionally, reducing the volume of sludge generation to about one-fifth of the conventional treatments; RP System to protect metal products and electronics parts from oxidization and deterioration; all these are the offspring of our management philosophy and environmental consideration.

Since we declared implementation of Responsible Care activities in 1997, we have been progressively deploying our autonomous management activities to ensure Health, Safety and the Environment. In 2001, all of our plants and manufacturing sites acquired the ISO 14001 certification. As one part of our responsible care activities, we are eagerly working on environmental improvement, such as measures for reduction of the emission volume of the substances specified in PRTR (Pollutants Release and Transfer Register), progressive promotion of zero emission of industrial wastes, promotion of green procurement and green purchase. In 2003 we introduced environmental accounting, the contents of which are publicized in this Environmental Report.

We also recognize that communication with society is a very important part of our responsible care activities. We are making utmost efforts to be a company familiarized as a member of respective local communities, through participation in various occasions to associate with them and through information disclosure.

We, Mitsubishi Gas Chemical Company, Inc., are dedicated to further promote our responsible care activities, in order to comply with expectation which society places in us. We hope that this report will give you a deep understanding of our environmental preservation activities. We look forward to receiving your valuable comments and advice.

March 2004

Hideki Odaka
Representative Director & President

Fundamental Policies on the Environment and Safety

We, Mitsubishi Gas Chemical Company, Inc. (MGC), sympathizing with the consensus of "sustainable development" and "structuring of recycling-based society" agreed by many countries in the world at the Earth Summit held in 1992 in Rio de Janeiro, participated in the establishment of the Japan Responsible Care Council (JRCC) and joined it as a member upon its start. Since then, we have been promoting the responsible care (RC) activities by setting up our overall safety management rules. We are also strongly aware that "to ensure safety" is the most important in proceeding our business activities, and place it as the important pillar in our RC activities.

Environmental and Safety Targets: Zero Accident, Zero Occupational Injury and Environmental Preservation

Fundamental Policies

Security of health, safety and the environment in operations:

We aim at attaining no danger and no accident, by improving our risk awareness and prevention capability through small group activities such as the new 5S activities and the proposal system for near accidents, as well as by our all-out safety and accident prevention activities. We also promote environmental preservation activities in our operations.

Promotion of resource and energy saving in production processes:

We take care of use for depletive resources. Further, we do our utmost in effective utilization of resources and energy in our production processes, as a countermeasure for prevention of global warming.

Promotion of environmental loads reduction:

We make our utmost efforts for reduction of environmental loads, such as reduction of emission of substances specified in PRTR and greenhouse effect gas and promotion of clean energy utilization.

Promotion of 3R's of wastes:

We aim at attaining zero emission by reducing generation and emission of wastes, by promoting reuse and recycling, and by minimizing the landfill treatment.

Environmental preservation in raw material and product logistics:

We promote rationalization of logistics, work on modal shift and eco-drive, and reduce greenhouse effect gas and substances in suspended particle form in the logistics stage.

Information service for safe use, handling and disposal of our products:

We actively provide our customers with information relevant to our products regarding safe use, care to be taken in handling and appropriate disposal methods.

Development of environmentally friendly and safety-considered products and technologies:

We implement various safety tests and verify their safety to human beings and the environment when we develop our new materials and products. We also promote development of production technologies with least environmental loads.

Support of RC activities in our subsidiaries and affiliates:

We implement RC activities not only in our company but also extend it to our subsidiaries and affiliates, in order to attain our environmental and safety targets as the entire Mitsubishi Gas Chemical Group.

Enhancement of society's confidence in us:

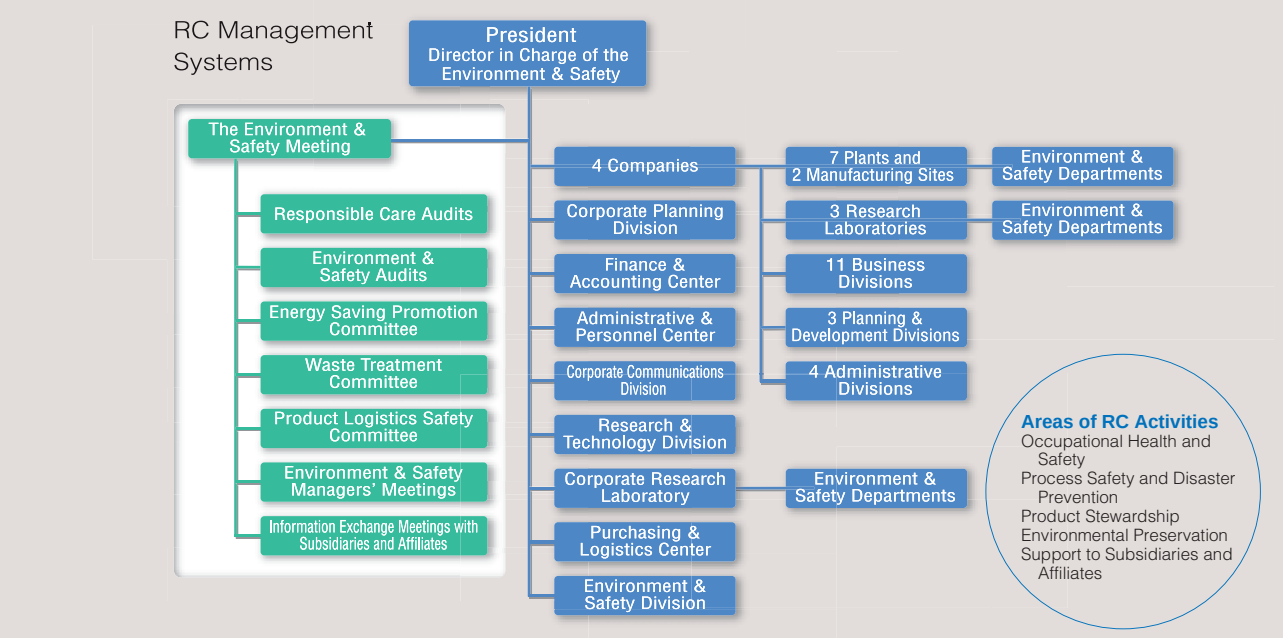
We make our utmost efforts for enhancement of the confidence that society places in us, through information disclosure by our environmental reports and website, and through promotion of communication by participating in the activities and events in respective local communities.

History of our Environmental and Safety Activities

Introduction Period (1995-1997)	Activity Period (1998-2000)	Deployment Period (2001-2005)
● Participated in establishment of the JRCC, and joined as a member. ● Establishment of our Overall Safety Management Rules. ● Set up of the middle term RC plans ● President's declaration on RC implementation ● Structuring of RC management systems ● Start of the ISO 14001 Introduction Committee ● Start of Countermeasures against PL Committee	● Acquisition of ISO 14001 certification by all of our plants ● Acquisition of ISO 9000S certification for all of our products ● Acquisition of certification for autonomous security inspection ● Introduction of new 5S activities ● Participation in the HPV program ● Structuring of the environment and safety database	● Publication of Environmental Reports ● Opening of website for RC activities ● Promotion of green procurement and purchase ● Deployment of RC activities to our subsidiaries and affiliates ● Introduction of environmental accounting ● Promotion of zero emission activities ● Introduction of occupational health and safety risk assessment systems

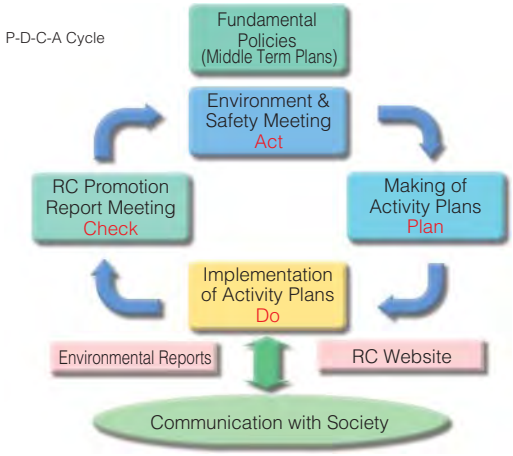
Responsible Care Management Systems

In accordance with our nine fundamental policies, all of our four internal companies and eight corporate sectors are promoting responsible care (RC) activities in the areas of occupational health and safety, process safety and disaster prevention, product stewardship and environmental preservation, including support to our subsidiaries and affiliates. We hold the Environmental and Safety Meeting annually, which is chaired by the President and composed of all the board members, plant managers, heads of research laboratories, business divisions and administrative divisions, in order to realize continual improvement by the P-D-C-A (Plan-Do-Check-Act) cycle based on our middle term plans.



PDCA Cycling of RC Activities

Based on the environmental and safety targets set up in our Overall Safety Management Rules and the fundamental policies, we make up our middle term plans for a 5-year period and annual activity targets of the entire MGC Group at the Environment & Safety Meeting. All of our sectors, workplaces being the main actors, plan concrete measures and activities, and do work to promote them. In the latter half of each activity period, the director in charge of the environment and safety holds the RC Promotion Report Meeting (RC audits) at each sector, and checks the results of activities, analyzes the activities and confirms the future subjects. According to the proceedings of RC, activity targets are reviewed by the management at the Environment and Safety Meeting, in order to reflect them in the activity plans for the following year leading to continual improvement (act).



Acquisition of ISO 14001 Certification

In order to promote our RC activities effectively, we introduced the environmental management systems in 1997 and all of our plants acquired ISO 14001 certification in 2001. As regards product quality, all of our plants have acquired ISO 9000S certification for our quality management systems. With respect to occupational health and safety, we are filling up our RC activities by application in all our workplaces of the management system that conforms to Occupational Health and Safety Management System established by the Ministry of Health, Labor and Welfare.

Status of ISO 14001 Acquisition

Plants	Month/year of Acquisition	Certifying Bodies
Tokyo Plant	Oct. 1998	DNV
Niigata Plant	Jun. 1998	DNV
Mizushima Plant	May 2000	JCQA
Yokkaichi Plant*	Aug. 1999	JQA
Osaka Plant	Nov. 1999	JQA
Yamakita Plant	May. 2000	JQA
Kashima Plant	Feb. 1999	JQA

*Naniwa Plant (acquisition in 2001) and Saga Plant are included.

Middle Term Targets and Results of Activities in fiscal 2003

Since 1997, we have been promoting responsible care activities with "Zero Accident, Zero Occupational Injury and Environmental Preservation" as our environmental and safety targets. Our main activities have been promoting autonomous safety management in the areas of occupational health and safety, process safety and disaster prevention, and reduction of chemical substance emission and waste reduction in the area of product stewardship and environmental preservation.
In fiscal 2002, almost all of our high pressure gas facilities acquired autonomous safety inspection license, and attained 20% reduction of emission of substances specified in the PRTR Law (bench mark: 1999) and an 80% reduction of final waste landfill (bench mark: 1995). We anticipate to obtain good results in future with respect to energy saving and CO_2 reduction, both affecting global warming issues.

History of our Environmental and Safety Activities

No	Fundamental Policies	Middle Term RC Targets for fiscal 2005	Results of Activities in fiscal 2003	Page
1	Security of health, safety and environment in operations	●Attainment of zero accident and zero occupational injury throughout the year	●Equipment accident: zero Labor accident: 2 ●Sharp increase in near accident proposals in 5S activities	8
		●Improvement of autonomous safety technologies	●Additional certification on the high pressure gas facilities in Niigata Plant ●Confirmation of process safety and disaster prevention and keeping compliance with laws	9
2	Supply of environmentally friendly and safety-considered products and technologies	●Development of environmentally friendly products and technologies	●Development of MX nylon film and such environment-related products as hydrogen peroxide and deoxidizer, etc. ●Implementation of environmental assessment on research and development themes	10 11
		●Implementation of safety assessment of products	●Safety test: 73 ●Use of MSDS in JIS form started. ●HPV leading company examination completed for 3 substances	12 13
3	Promotion of resource and energy saving in production processes	●Reduction of raw material quantity used	●Management of environmental loads flow (input/output) at workplaces started.	14
		●Improvement of unit energy consumption by 1% annually (10% improvement against 1999 as bench mark)	●Improvement of unit energy consumption by 1%, and of added value by 9% per Unit	15
		●Reduction of greenhouse effect gas	●CO_2 emission increased. Emitting ratio of 5 greenhouse effect gasses was 0.2%	
4	Promotion of environmental loads reduction	●Appropriate management of substances with environmental loads	●Management of emission into air and water ●Management of dioxin emission from incinerators	16
		●20% reduction of substances specified in PRTR (bench mark: 1999)	●PRTR specified substances reduced by 47%. (Legally regulated substances reduced by 20%) ●Trial of chemical risk assessment	18 19
5	Promotion of 3R's of wastes (3R's: reduce, reuse and recycle)	●Promotion of 3R's of wastes ●Reduction of final landfill by 75% (bench mark: 1995)	●Emission of wastes reduced steadily, ●Final landfill reduced by 80%. Below 3% of final landfill against total emission from plants achieved.	20
		●Promotion of zero emission	●4 plants including Tokyo Plant attained zero emission.	21
6	Environmental preservation in raw material and product logistics	● Set up of targets for reduction of environmental loads	●Reduction of transportation frequency by modal shift	22
7	Information services for safe use, handling and disposal of our products	● Presentation of up-to-date MSDS	●Distribution of MSDS in JIS form. Sticking of yellow card to containers. ●Wide area reinforcing system against logistics accidents	23
8	Support to our subsidiaries and affiliates for environmental and safety activities	●Enlightenment of the environmental management systems	●Promotion of ISO 14001 acquisition (acquisition ratio: 47%)	24
		●Regularization of Information Exchange Meetings	●Summation of environmental and safety data started.	
9	Enhancement of society's confidence in us	●Information disclosure through environmental reports	●Publication of Environmental Report 2003 ●Presentation of environmental information to Eco-Fund, etc. Participation in the explanation meetings sponsored by JRCC	26
		●Promotion of communication with local communities	●Promotion of interaction with local communities (beautification of plants' nearby areas, opening of our welfare facilities to the public)	27

Activity period: January 2003 — December 2003
(N.B. Items related to energy saving, environmental loads reduction and 3R's of wasters were implemented in the period from April 2002 to March 2003.)

Environmental Accounting

In order to ensure quantitative grasp and management of our environmental preservation activities, we introduced environmental accounting in this fiscal year. We disclose the summation results for fiscal 2002 in this Environmental Report. By continuing it, we intend to enhance effective implementation and transparency to society of our environmental preservation activities.

Pollution prevention investment
Catalytic combustion facility for detoxification of gas emitted from production processes

Pollution prevention investment
Emergency detoxification facility for hydrogen sulfide

In fiscal 2002, our investment amounts were 513 million yen and expenditure amounts were 5,669 million yen. To cope with the increase of production volume, we enhanced the capacity of waste water and emitted gas treatment. By these investments, invest amounts for pollution prevention exceeded 50% of the total cost. Waste treatment and disposal expenditures place a large portion of our resource-recycling cost. However, we gained 90 million yen income by selling valuable materials recycled from such wastes.

Environmental Preservation Cost and Effects

Unit: ¥ million

Category		Investment	Expenditure	Effects (increase/decrease compared to FY2001)
Cost within workplaces	Pollution prevention cost	296	2,235	**Air pollution prevention** · SOx emission 422 tons (+38 tons) · NOx emission 527 tons (−239 tons) · Soot and dust emission 62 tons (+11 tons) **Water contamination prevention** · Water used 33 Mil. M^3 (−9 Mil. M^3) · COD emission 304 tons (−88 tons) · Total nitrogen emission 381 tons (−259 tons) · Total phosphorus emission 62 tons (+15 tons)
	Global environment preservation cost	42	590	· Energy used 518 Kkℓ (±0 Kkℓ) (converted to crude oil) Participated in a joint development project for geothermal generation 22 Kkℓ (converted to crude oil) · CO_2 emission 1,515 Ktons (+55 Ktons)
	Resource recycling cost	65	1,121	· Waste generation 110 Kton (−3 Ktons) · Recycling ratio (outside and inside recycling) 59% (−1%) · Final landfill 0.5 Kton (−0.6 Kton)
Up/downstream cost		6	18	· Contributed to environmental preservation by selling water treatment agent. · Controlled dioxin generation from incineration by changing ageless external packaging bags to non-halogen material. · Used resource effectively by collecting and reusing used polyethylene cans.
Management activities cost		26	346	· Efforts to reduce environmental loads by reinforcing monitoring of waste water and gas emission. · All plants acquired ISO 14001, based on which we maintain our activities. · Our environmental assessment system reinforced for chemical substances we handle. (PRTR substances, etc.)
R & D cost		78	1,195	· We are promoting development of products related to environmental preservation, such as chemicals for environmental improvement. · We are promoting research and development related to clean energy. · We are implementing improvement research of production technologies to reduce environmental loads.
Social contribution cost		0	8	· We conducted tree planting to protect the environment of local communities. · We participated in activities sponsored by local governments and local communities, including cleanup and other activities.
Environmental damages remedy cost		0	156	· Levy on SOx loads, etc.
Total		513	5,669	

Economical Effects

Income from selling valuable materials	90	Sales of fertilizer recycled from wastes, solid fuel from dust (RDF), fuel from waste liquids, etc.

Contents of Summation in FY 2002:
- Summation period: April 1, 2002 to March 31, 2003
- Our environmental accounting conforms to the Environmental Accounting Guidelines : 2000 of Ministry of the Environment.
- Scope of summation: All our workplaces (7 plants, 2 manufacturing sites, 4 research laboratories, and all the subsidiaries and affiliates located in our workplaces and implementing environmental activities jointly with us)
- Methods of summation:
  Investment amounts: The ratios related to environmental preservation are pro-rata summated from the approved budget during the fiscal period.
  Expenditure amounts: Expenditure for environmental preservation activities. Depreciation amounts are counted in.
  Economical effects: Only the items that can be expressed in terms of monetary unit are summated in amount. Other items are expressed by the physical quantity units or main accomplishments.

Responsible Care Audits

In order to confirm the proceedings of our responsible care (RC) activities, we annually hold at each sector the RC Promotion Report Meeting (RC audits) chaired by the director in charge of the environment and safety. This meeting comprises reporting on implementation status of targeted items in all the RC areas, self assessment by each working group unit according to our unique check lists, and internal audits based on these in each workplace.

RC Promotion Report Meetings

In fiscal 2003, RC Promotion Report Meetings were held in September to October, with “promotion of the new 5S activities”, “reduction of equipment and process failure”, “management and utilization of environmental and safety information” and “reduction of environmental risks” as the targeted items. The RC internal audit item was “environmental preservation”, and the director’s directive was “all-out accident prevention and compliance with the laws”.

It was confirmed that each of our workplaces steadily implemented the targeted items in the changing business environment, compliance with laws and regulations, green procurement, etc. and that we were making utmost efforts for safety and environmental preservation. The meetings have presented improvement subjects as follows.

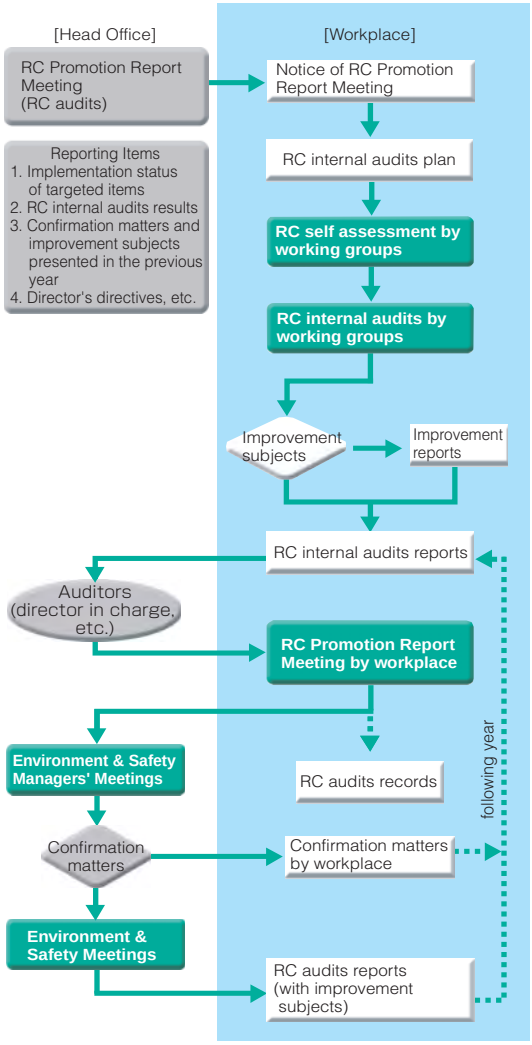
The Entire Company’s Improvement Subjects

1. To grasp and assess the quantity of emitted substances being the objects of environmental management at each workplace.
2. To review and promote zero emission of wastes.
3. To review the promotion of near accidents improvement proposals, and reinforce guidance and education of subsidiaries and affiliates.

Confirmation Matters of Workplaces for Next Fiscal Year

The confirmation matters of each workplace for next fiscal year, presented in accordance with respective proceeding status, importance and emergency, are as follows:

Tokyo Plant	Structuring of crisis communication Promotion of zero final landfill and zero inside incineration
Niigata Plant	Reduction of claims and complaints against odor Reduction of ethylene oxide emission
Mizushima Plant	Promotion of energy saving Promotion of reduction countermeasures against benzene emission
Yokkaichi Plant	Unification of near accidents proposals and small group activities Reinforcement of analysis/assessment of environmental and safety data
Osaka Plant	Promotion of waste reduction and zero emission
Yamakita Plant	Active utilization of RC teaching materials Reduction countermeasures against environmental loads based on the data assessment
Kashima Plant	Measures for harmful gas leakage and all-out management Reduction of dichloromethane emission
4 R&D institutes	Study of environmental assessment criteria for environmental products, research and development
Head Office and Divisions	Reinforcement of inter-divisional collaboration systems Enhancement of education on environmentally friendly products



Flowchart of RC Promotion Report Meetings

above: RC Promotion Report Meeting
right: Self assessment check list

Activity Targets in fiscal 2004

Fiscal 2004 is the latter half our middle term plan. We intend to have RC activities take root further in the subsidiaries and affiliates of our Mitsubishi Gas Chemical Group. In concrete, our plans include promotion of green procurement and zero emission, and support to our subsidiaries and affiliates for their environmental preservation activities. We also take energy saving and CO_2 reduction as important subjects.

No.	Fundamental Policies	Activity Targets in fiscal 2004	Page
1	Security of health, safety and environment in operations	● Measures for facilities by risk assessment of occupational health and safety ● Acquisition of continual operation certification by our plants located in the industrial complexes	8 9
2	Supply of environmentally friendly and safety-considered products and technologies	● Raw material procurement and product supply under the green procurement guidelines ● Application of the green purchase guidelines	13
3	Promotion of resource and energy saving in production processes	● Drastic improvement of unit energy consumption (bench mark: 2002)	15
4	Promotion of environmental loads reduction	● Reduction of PRTR substances (ethylene oxide) ● Implementation of chemical risk assessment	19
5	Promotion of 3R's of wastes	● Establishment of zero emission promotion plans ● Volume reduction of outside incineration and final landfill	21
6	Environmental preservation in raw material and product logistics	● Reduction of environmental loads by promoting modal shift ● Promotion of eco-drive to transporters	22
7	Information services for safe use, handling and disposal of our products	● Promotion of management of up-to-date logistics safety information	23
8	Support to our subsidiaries and affiliates for environmental and safety activities	● Promotion of ISO 14001 acquisition (acquisition ratio: 50%) ● Target setting for environmental loads reduction (measures for wastes, etc.)	24
9	Enhancement of society's confidence in us	● Publication of Environmental Report 2004 (opening website for the English version) ● Distribution of the environmental reports to local communities	26 29

Environmental Objectives and Targets of our Workplaces under ISO 14001

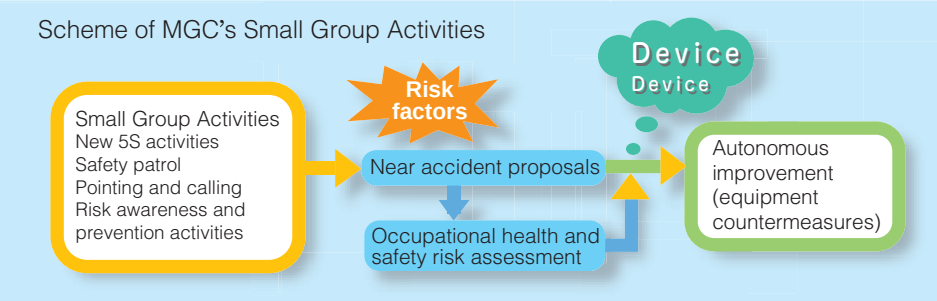
Plant	Resource and Energy Saving	Environmental Loads Reduction	Waste Reduction	Topics
Tokyo Plant	Improvement of unit energy consumption by 1% (bench mark: 2002)	Shift of fuel to city gas (abolition of equipment using heavy oil)	Volume reduction of final landfill and outside incineration by 20% (2005/2003)	Structuring of emergency management systems
Niigata Plant	Reduction of fuel and electric power consumption by 3.8% (bench mark: 2002)	● Drastic reduction of ethylene oxide emission ● Reduction of claims against odor	Reduction by 9% (bench mark: 2002)	Recovery of energy of steam pressure conversion
Mizushima Plant	Reduction of unit energy consumption by 6% (bench mark: 1998)	Improvement of drainage loads (BOD) by 1% (bench mark: 2002)	Attainment of zero emission in 2005	Renewal of certification for high pressure gas facilities
Yokkaichi Plant	Improvement of unit energy consumption by 2% (bench mark:1997)	Reduction of air pollutants by 40% (bench mark: 2001)	● Final landfill no more than 50 tons ● Reduction of outside incineration	Promotion of communication with local communities
Osaka Plant	Energy saving by improvement of unit material consumption in production processes	Review of environmental management	Final landfill in 2004 to be no more than 2% of generated quantity	Attainment of zero emission in 2006
Yamakita Plant	Improvement of unit energy consumption by 1% (bench mark: 2002)	● Reduction of drainage loads ● Noise at the site border to be no more than that of 2001	Waste generation unit to be no more than that of 2001	Reinforcement of drainage management
Kashima Plant	Improvement of unit energy consumption by 2% (bench mark: 2002)	Reinforcement of dichloromethane emission management	Reduction of waste generation by 10% (bench mark: 2002)	Implementation of chemical risk assessment
4 Research Laboratories	Electric power and water saving	All-out management of PRTR substances in small quantities	Study of zero emission, Recycling of glass bottles	Study of environmental assessment criteria for research and development

For environmental loads data of these plants, please refer to PP.28-29.

Our Operation of Occupational Health and Safety

Operation of Occupational Health and Safety

We are aiming at achieving zero accident and zero occupational injury through autonomous improvement activities based on our RC activities. Our occupational health and safety management is implemented in accordance with the Occupational Health and Safety Management System conforming to that of Ministry of Health, Labor and Welfare. In all of our workplaces, we have been training the instructors for the new 5S activities, and promoting overall safety activities aiming at employee education and productivity improvement. These have resulted in a drastic increase of the near accident proposals and enhancement of risk awareness and prevention, which has promoted energetic autonomous improvement activities.



Occupational Health and Safety Risk Assessment

Further, we have introduced the occupational health and safety risk assessment which is a tool to quantitatively identify the causes of dangers and accidents, in order to nullify them completely. We estimate occupational health and safety risks from among the near accidents, prioritize them and pursue the causes by analysis methods according to respective risk levels, in order to take measures.

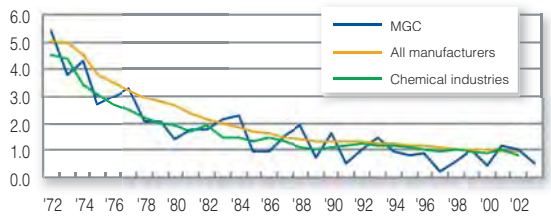
[Estimation of occupational health and safety risks]= [hazard] x [frequency] x [importance]

Hazard	Legal response (legal arrangements, measurements) Danger (functional, physical, chemical, inflammable, explosive, etc.)
Frequency	Hazard occurrence (frequency, sate of emergency, etc.)
Importance	Influence to labor accidents

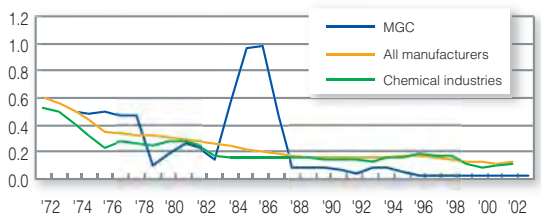
Safety Results

In 2003, our eight workplaces out of 11 achieved zero accident and zero occupational injury which was our safety target. No equipment incident occurred. As to labor accidents, however, there were 2 cases by absenteeism and 12 cases by non-absenteeism. As most of these accidents occurred in July and August, we issued an emergency request for all-out prevention of occupational injury, under the name of the director in charge of the environment and safety, calling for reinforcement of occupational injury prevention in all of our workplaces, subsidiaries and affiliates.
With respect to occupational injury by absenteeism in 2003, our frequency rate (number of casualties per 1 million labor hours) was 0.53 and severity rate (number of days lost per 1000 labor hours) was 0.02. Since 1972, our frequency and severity rate have declined, although the declining tendency has slowed down these few years.

Transition of frequency rate



Transition of severity rate



Health Care

For prevention of diseases, we are encouraging our employees 35 years old and above to undergo health screening checkups, in addition to statutory checkups. We are supporting their health enhancement by offering our own sports facilities. In 2003, our corporate health insurance society made contracts with specialized institutions and commenced mental health care for our employees.

Our Operation of Process Safety and Disaster Prevention

Autonomous Safety Technologies

We are working on the advancement of our autonomous safety technologies centering on high pressure gas production facilities, and boilers and Pressure Vessel Type 1. In 2003, our Niigata Plant acquired qualification of the "certified completion and process safety inspector" based on High Pressure Safety Act for its 6 high pressure gas production facilities. With this arrangement, we have acquired approval qualification for almost all of our high pressure gas production facilities. This approval system permits implementation of safety inspection by autonomous management at workplaces, technological and management levels of which are certified as excellent by the Minister of Economy, Trade and Industry.

Our Mizushima, Yokkaichi and Niigata Plant have acquired approval qualification for continual operation of boilers and Pressure Vessel Type 1. Kashima Plant is aiming at acquiring it in 2004.

In order to assist safety and accident prevention activities as experts, we are educating our employees to obtain official titles, such as high pressure gas production safety controller, boiler engineer, nondestructive inspector and equipment maintenance engineer.

Process Safety and Disaster Prevention Management

We hold every year the RC Promotion Report Meeting, chaired by the director in charge of the environment and safety, for all the workplaces in order to direct and guide on process safety and disaster prevention in our responsible care activities. Depending on the cases we implement environment and safety inspection.

In 2003, large scale accidents occurred successively in chemical plants. In view of this, our director in charge of the environment and safety called for all-out process safety and disaster prevention management and compliance with laws at each of our workplace. All our workplaces recognized not only compliance with laws but the principle of autonomous safety management, and worked on reinforcement of safety together with our subsidiaries and affiliates in order to prevent accident occurrence.

Emergency Management

We have established our accident prevention systems to minimize the damages in cases of accident. Each of our workplaces has set up its accident prevention activity rules, based on which it regularly implements education and training of employees for appropriate response. Furthermore, our Niigata, Mizushima, Yokkaichi and Kashima Plant, to which the "Petroleum Complex Accident Prevention Act" is applied, have entered into the "Regional Joint Accident Prevention Agreement" and structured a mutual aid system in case of emergency.

In 2003, we reviewed our internal Special Rules for Earthquake Disaster and Accident Prevention, in accordance with enforcement of the "Special Measure Act for Promotion of Earthquake Disaster and Accident Countermeasures in the Tonankai and Nankai Districts."

Workplaces with Autonomous Safety Approval for High Pressure Gas

Workplace	Time of Approval	Number of Facilities
Mizushima Plant	Dec. 1999	2 newly approved
	Jun. 2000	2 added
	Dec. 2000	2 added
	Apr. 2001	1 added
Niigata Plant	Dec. 2000	7 newly approved
	Sept. 2003	6 added

Workplaces with Approval for Boilers and Pressure Vessel Type 1

Workplace	Time of Approval	Operation Period
Mizushima Plant	May 1997	2 year continual operation newly approved
	Dec. 2000	4 year continual operation added
	Apr. 2002	2 year and 4 year continual operation renewed
	Dec. 2003	2 year and 4 year continual operation added
Yokkaichi Plant	Aug. 1997	2 year continual operation newly approved
	Aug. 2002	2 year continual operation renewed
Niigata Plant	Dec. 1997	2 year continual operation newly approved
	Nov. 2002	2 year continual operation renewed
	Mar. 2003	2 year continual operation added

Number of Employees with Main Official Titles

Title	Number	Statutory Number
High pressure gas production and safety controller	987	216
Boiler engineer	776	45
Energy controller	89	30
Pollution controller	181	33
Dangerous materials controller	1,947	176
Poisonous materials controller	119	6
Specified industrial waste disposal controller	27	8
Occupational health controller	80	16
Certified environmental measurer	28	3
ISO 14001 internal auditor	154	—
Nondestructive inspector (NDI)	48	—
Equipment maintenance engineer	95	—

Training for accident prevention in workplace

Environmentally Friendly Products and Research and Development

We are aggressively working on the development of products and technologies, which contribute to environmental preservation and are friendly to human health and safety.
We are aiming at building an affluent society through a wide range of value creation based on chemical science.

MX Nylon Film

Needs are arising for high gas barrier quality in food packaging materials for prevention of food oxidization or deterioration. Conventionally in the film segment, chlorinated resins were the main materials. But, dioxin emission from incineration is their problem today.
MX Nylon, which we have developed and sell and is made of non-halogen resin, has been receiving higher evaluation year by year thanks to its environmentally friendly property. Particularly in America and Europe, our MX Nylon is valued as high gas barrier polymer for making multi-layer PET bottles which are most suitable to the recycling system.

MX Nylon Film
Multi-layer PET bottles

Characteristics
- High gas barrier
- Non-halogen

RP system deoxidized packaging
above: books
bottom: excavated sword

Applications
- Transportation of electronic parts, Preservation of oxidization
- Preservation of cultural property insecticide, fungus resistance, rust proofing, moisture/corrosive gas absorption
- Transportation, storage and rust proofing of precision parts (oil coating not necessary)

RP Preservation System

The main applications of deoxidizer are maintenance of flavor and taste of foodstuff (AGELESS) and transportation of electronics parts. Another generally unknown application is preservation of cultural property, such as insecticidal treatment and fungus resistance.
Conventionally for this application was used methyl bromide gas, which is an ozone layer depleting and poisonous substance. RP System performs perfect insecticidal treatment by nullifying oxygen in airtight bags. It is also advantageous that people dealing with cultural property do not have to use methyl bromide.
Another example of applications is rust proofing of precision parts during transportation and storage.

New Drainage Treatment Method and Agent

Drainage treatment agent catalogs

ASC Super and the adding device

[OR-SON AT]
Conventionally, it has been difficult to decompose organic chemical substances by biodegradation. But, we have attained advancement of decomposition efficiency by enabling decomposition of these substances. We have also succeeded in reducing the sludge volume to one-fifth of the conventional level, and at the same time, advanced workability by accelerating its sedimentation.
Sludge: Suspended minute particles in the drainage turned into mud by coagulation and sedimentation

[Dia Fresh Series]
F-SON : The new drainage standard is be enforced in July 2004 setting the maximum content of fluorine must not be more than 8ppm. F-SON is a fluorine separating agent that enables easy compliance with the new standard.
NOESOL AG : This is an abherent for solvent type coating mist. It removes tackiness caused by coating mist dispersed in circulating water in the wet coating booth for automobiles, etc. and also enables easy recovery of the mist.
NEOPOCK : This is an agent which effectively coagulates and separates water-soluble paints and water-soluble polymer molecule contained in the drainage.

[ASC Super]
This is an agent to decompose hydrogen peroxide into water and oxygen by enzyme. Under a wide range of conditions, it enables perfect decomposition by adding it in a very small quantity. It is used for the drainage treatment in many industrial fields.

Environmentally Friendly Print-Circuit Board Material

BT Laminated Board Pre-Preg

In many cases, soldering is adopted to fit electronics parts onto print-circuit boards. As lead, the soldering material, holds an environmental problem in its emission, however, a new type of lead-free soldering material is developed. The higher melting point of the new soldering material compared to that of the current materials necessitates heat resistant materials for print-circuit boards.
To comply with such demand, we have developed and supply our high performance FR-4 material, based on BT Resin with excellent heat resistant property, as the print-circuit board material for semi-conductor package. We also supply “halogen-free” laminated board material which does not contain brominated epoxy resin as fire retardant.

We are developing environment-related products and technologies by utilizing our main products such as hydrogen peroxide, methanol and deoxidizer.

Products utilizing hydrogen peroxide

DEOPOWER
Sewage · drainage deodorant

DESLIM
Water treatment agent

ELM Series
Ultra high-purity chemicals for semi-conductor washing

High-purity hydrogen production equipment utilizing methanol

MGC-MH Process

Production of high-purity hydrogen from methanol and water for application in electronics and fine chemicals

upper: MH plant
lower: MH unit

Products utilizing oxygen absorbers

AGELESS

Deployment to freshness-keeping of foodstuffs, and preservation of pharmaceuticals and toiletries

AnaeroPack

Culturing system of anaerobic microorganisms in hospitals

Memory Green Crystal

A greening system for easy watering and maintenance of rooftop gardens and plant pots. Instead of natural soil, our Memory Green Crystal (water-retention resin in gel form) and artificial light-weight soil are used.

A flower pot at Naka-dori, Marunouchi, Tokyo

A rooftop garden

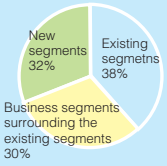
Environment-related Research and Development

We are progressively implementing the development of environmentally friendly products and environmental preservation technologies. Our expenditure for environment-related development is about 15% of the total research and development expenditure, about one-third of which is spent for our new business areas. Several themes, such as RDF, Memory Green Crystal, have been materialized and got in operation already.

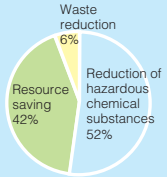
As regards the environmental loads reduction field, we prioritize reduction of hazardous chemical substances and resource saving in our research and development. Besides, we are working aggressively and continually on the improvement of production technology to obtain methanol and dimethyl ether from clean natural gas, and on the research to utilize these materials as the clean energy sources of fuel batteries

Breakdown of our Expenditure for Environment-related R&D

(by Business Segment)



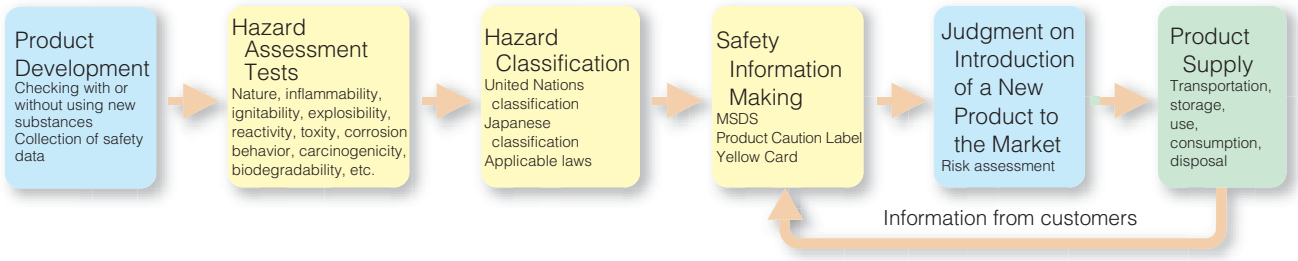
(by Environmental Loads Reduction Segment)



Safety Management of Chemical Substances

We are promoting safety management of chemical substances and our products with awareness of their impacts to the environmental and human health throughout their entire life cycle. We provide our customers actively with necessary information on safe use, care to be taken in handling, and proper disposal methods of our products.

Flowchart of Chemical Substances and Products Safety Assessment



In our research and development, and development and introduction to the market of our new product, we comply with the Product Safety Assessment Standards to confirm the registration status of relevant chemical substances, necessary data, and collect necessary data such as hazard information, environmental impacts information, in addition to confirming their hazard classification and applicable laws. Based on these works, we prepare safety information such as MSDS, product caution label and yellow card.
We are also making utmost efforts to reduce risks as much as possible, by providing our customers with appropriate information confirming their application, use and disposal methods of our products.

Safety Tests

There are a number of test methods to assess hazard of chemical substances and products.
We conduct all necessary tests to judge hazard in addition to the statutory tests.
We have appropriate facilities to conduct internally the main tests relevant to the environment and health. Other tests are entrusted to external testing bodies.
In 2002, we conducted 73 tests on hazard and environmental impacts safety. The table below gives the breakdowns of tests.

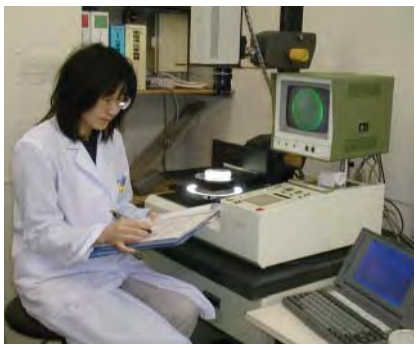
Testing Items	Number of Tests
Biodegradability	10
Mutagenicity	17
Chromosomal abnormality	2
Acute toxity/ toxity of repetitive dosing for 28 days	21
Skin primary irritation, corrosion behavior, sensitivity	22
Other	1

In the safety test facility of our Niigata Research Laboratory, we are conducting tests relevant to the environment and health as follows.

- Degradability test (GLP certified facility)
- Mutagenicity test (GLP certified facility)
- Acute toxity test
- Skin primary irritation/corrosion behavior test
- Skin sensitivity test
- Pathogenicity test

Whether a material is designated as a hazardous material under the Fire Defense Law (Class 2, Class 4, etc.) is determined by the quality assurance department of our Tokyo Research Laboratory and other main workplaces.

Safety Test Wing
Niigata Research Laboratory



GLP Test Equipment

GLP Facility Certificate

(above: Ministry of Health, Labor and Welfare
below: Ministry of Economy, Trade and Industry)

GLP: Good Laboratory Practice. Data from GLP approved facilities are used as official safety data.

Safety Information Services

MSDS and Safety Technological Information

Safety information we provide comprises MSDS, product caution label, yellow card, safety guidelines and product catalogs.
About 40% of our entire product items are the object of legal obligations for making and supplying MSDS. However, we make MSDS on all of our total about 1,100 product items and supply them with our customers, transporters and sales agents.
In May 2003 we started to supply parties concerned with our MSDS in JIS form. Upon revision to the JIS form, we reviewed the safety and hazard level of our products and expression thereof in accordance with the United Nations Classification Standards.
With respect to the products with higher hazard level, we present information on their hazardous nature in the product catalogs, and, prepare and supply safety technological data as circumstances demand.

MSDS in JIS Form　Safety Guidelines　Product Catalog

MSDS: Material Safety Data Sheet
Necessary information for safe handling of chemical materials and products is noted in this document. As regards products and materials containing the substances specified in PRTR (Pollutants Release and Transfer Register) Law, Occupational Health and Safety Law and Hazardous Materials Control Law, it is legally obligated to submit MSDS in JIS form by the end of 2004.

Cooperation in HPV Initiatives

As a participant in HPV Initiatives of ICCA, we are supporting its safety assessment activities for chemical substances of high production volume. Japanese enterprises participate in assessment of 330 substances, of which 43 are participated in by Japanese as leaders.
We participate in 3 substances as leader and 26 as cosponsor. As to the 3 substances under our leadership, the OECD examination on their safety assessment reports have been completed.

3 Substances under our Leadership
m-phenylenebis(methylamine)
2-dimethylaminoethyl methacrylate
m-Toluic acid

26 Substances under our Co-sponsorship	
formaldehyde	triethylamine
N,N-dimethylformamide	dimethylamine, in aqueous solution
methylamine,solution	benzene-1,2,4-tricarboxylic acid 1,2-anhydride
hydrogen cyanide	methacrylic acid, 2-ethylhexyl ester
trimethylamine,solution	2-hydroxyethyl methacrylate
phthalic anhydride	ammonia, aqueous solution
ammonia, anhydrous	tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate
p-xylene	dipotassium peroxodisulphate
m-xylene	diammonium peroxodisulphate
diethylamine	sodium dithionite
dimethyl ether	disodium peroxodisulphate
butyl methacrylate	methacrylic acid, 2-(diethylamino)ethylester
disodium carbonate,compound with hydrogen peroxide (2:3)	
[2-(methacryloyloxy)ethyl]trimethylammonium chloride	

HPV: High Production Volume Chemicals
HPV Initiatives: Safety assessment activities implemented autonomously by ICCA (International Council for Chemical Industry Associations) for chemical substances produced 1,000 tons or more per year

Cooperation in LRI Initiatives

As a member of Japan Chemical Industry Association (JCIA), we also participate in the ICCA's LRI Initiatives and support the activities from financial aspect. JCIA, a main member body of ICCA, is working on basic researches on endocrine disrupting substances, chemical carcinogenesis, chemical sensitivity, etc.

LRI: Long-range Research Initiatives: Basic research activities, jointly promoted by ICCA's members, which are estimated to take a long period of time to solve safety scientifically and develop more effective test and assessment methods of chemical substances.

Green Procurement

From our standpoint as being a raw materials supplier, we have complied with customers' requests by examining the contents of environment-concerned chemical substances specified by them.
In this year, we implemented surveys on two cases with our vendors. One is on their response status to the environment. The other is on the contents of environment-concerned chemical substances according to ranks, which includes the object substances of JGPSSI (Japan Green Procurement Survey Standardization Initiative), an organization mainly composed of electric/electronic equipment industries.
In accordance with these surveys, we make up our Green Procurement Guidelines, and promote our activities for reduction of environmental loads, request to our vendors for structuring their environmental management systems and the prioritized use of environmentally friendly raw materials.

Green Purchase

We have implemented green purchase by each workplace. We are going to make up our Green Purchase Guidelines in order to promote it by Mitsubishi Gas Chemical Group as a whole.

Green Procurement/Purchase　In purchasing merchandises, service and raw materials, priority is given to those with less environmental loads.

Environmental Loads in Business Operations

Flow of the actual results of environmental loads shows a general view of the input invested for manufacturing products: material chemicals, energy, and water, and the output discharged into the environment: emission into the air, drainage to the water area, and discharged wastes. The chart below shows the flow of the actual results of environmental loads associated with our business operations.
Principal results of reducing environmental loads in fiscal 2002 by the Responsible Care activities are as follows:

- As regards save-resources/save-energy, unit energy consumption improved at almost all plants.
- Emission volumes of PRTR law specified substances were reduced by 20% of the standard value in fiscal 1999.
- As regards waste reduction, final landfill volumes were reduced by 80% of the standard value in fiscal 1995.

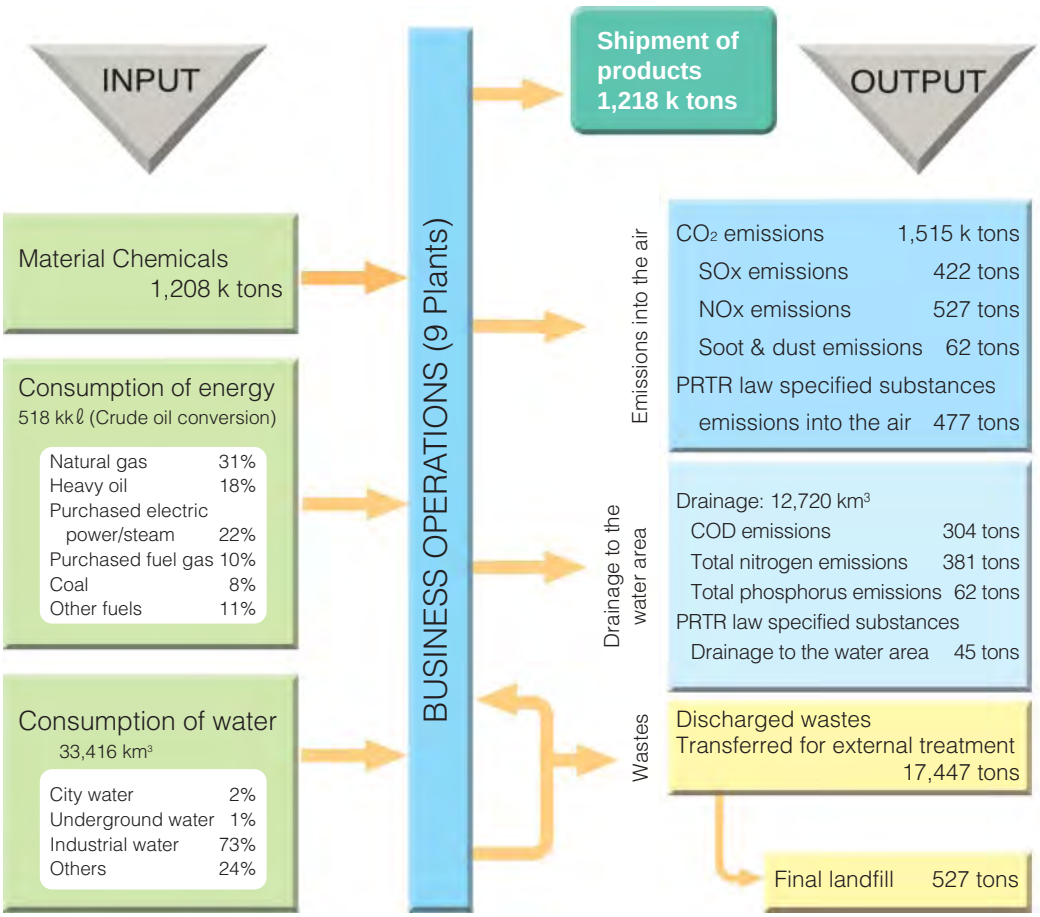
Toward the future we will likewise continuously take the initiative for an efficient utilization of input items as well as the reduction of output items.

Input items

Consumption of material chemicals : Purchased volumes of chemical materials directly used for manufacturing products.
Consumption of energy : An aggregate amount of fuels (heavy oil, etc.), purchased steam, and purchased electric power consumed in business operations.
Used volumes of water : Total amount of city water, industrial water, etc. used for business operations.

Output items

CO_2 : Volumes of carbon dioxide (CO_2) gas emitted associated with business operations.
SOx : Volumes of SOx contained in the emitted gas from each combustion facility.
NOx : Volumes of NOx contained in the emitted gas from each combustion facility.
Soot and dust : Volumes of soot, etc. contained in the emitted gas from each combustion facility.
PRTR law specified substances
Emission volumes into the air : Emission volumes of the specified 43 substances into the air.
Volumes of drainage : Volumes discharged to the public water area after treatment of drainage from business operations.
Emission volumes of COD : Value obtained multiplying volumes of drainage by COD concentration in the drainage.
Emission volumes of total nitrogen : Value obtained multiplying volumes of drainage by nitrogen concentration in the drainage.
Emission volumes of total phosphorus : Value obtained multiplying volumes of drainage by phosphorus concentration in the drainage.
PRTR law specified substances
Drainage volumes to the water area Drainage volumes of the specified 43 substances to the public water area.
Discharged volumes of wastes : Volumes transferred for outside treatment of the wastes generated by business operations.
Final landfill volumes of wastes : Of the wastes transferred for external treatment, the landfill volumes as final disposal.



Efforts for Preventing Global Warming

Energy Consumption

Our company has implemented, starting with the introduction of co-generation for energy saving, optimization of operating conditions in manufacturing processes, waste heat recovery, adoption of high efficiency electric machineries, etc. In addition, we use our best efforts for rationalization of energy consumption as the energy management designated plant at all plants.
In 2002 we determined our energy reduction target as shown below, and took the initiative in energy saving activities.

Long-term Target

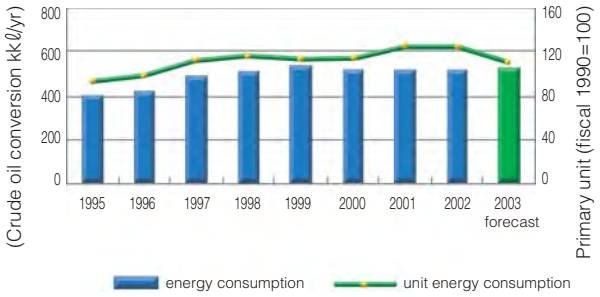
We will strive to reduce value added unit energy consumption by 10% by fiscal year 2010, making the value in fiscal 1990 as standard.

Implementation Plan in 2002

1. To improve energy consumption and value added unit energy consumption by 1%.
2. To establish operation control value and assess energy saving.

In fiscal 2002 we achieved crude oil conversion 7.6 thousand kℓ of energy saving in the aggregate of all plants through efficiency enhancement of electric machineries, electric power economization, process improvement, reduction of steam consumption, etc. Energy consumption was nearly at the same level of 518 thousand kℓ by crude oil conversion as in the previous fiscal year, and improved by 1% compared to the previous fiscal year at unit energy consumption based on the turnover amount standard. Value added unit energy consumption was improved by 9%, which cleared the target in the single fiscal year.

Energy Consumption and Primary Unit



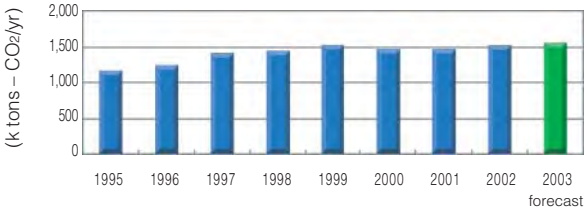
Clean Energy

At our company the use ratio of clean energy natural gas is at high level of 31%, and yet we are further pushing forward conversion of fuels to city gas (natural gas) little by little.
In addition, we participate in the joint development of geothermal power generation, which is clean and not emits carbon dioxide (CO_2), by means of supplying the power company with steam generated utilizing subterranean heat.

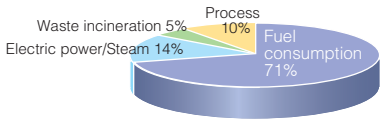
Emission Volumes of Greenhouse Gas

At our company CO_2 generated by fuel consumption accounts for a large portion of total greenhouse gas. In addition, other than fuels, reactive exhaust gas from processes occasionally contains CO_2. Therefore, we raised the accuracy of capturing such emission volumes and modified the related emission volumes in and before fiscal 2001. Energy consumption in fiscal 2002 was almost the same as the amount in the previous fiscal year, but the emission volumes of CO_2 increased a little to total 1,515 thousand tons.

Emission Volumes of CO_2



Proportion by Source of Release of CO_2



5 kinds of greenhouse gas exist other than CO_2, but their emission volumes in fiscal 2002 were scarce compared to CO_2 at our company.

Emission Volumes of 5 Greenhouse Gases

Methane	0.2 k tons — CO_2 conversion
Nitrous oxide	2.1
Hydrofluorocarbons	0.5
Perfluorocarbons	0
Sulfur hexafluoride	0

Ozone Layer Depleting Substances

Flon, halon, etc. which deplete ozone layer in the stratosphere are ozone layer depleting substances. We use flon in the enclosed system as refrigerant for freezers and air-conditioners, but we have taken steps to gradually discontinue the machinery and equipment using specified flon such as CFC (Chlorofluorocarbon), and to give destruction treatment through permitted processors for recovered specified flon. We will continue to change to substitute flon such as HCFC (Hydrochlorofluorocarbon).

Efforts for Air Pollutants Control

Our company is pushing forward with voluntary measures to reduce emissions of air pollutant substances such as sulfur oxides (SOx), nitrogen oxides (NOx), soot and dust. SOx has been successfully reduced up to this date by means of attaching an exhaust gas desulfurization unit to each coal-fired boiler and converting fuel for small boilers to low-sulfur heavy oil or city gas (natural gas). Installation of the exhaust gas denitrification unit, adoption of low-NOx burners, and improvement of the combustion conditions have been implemented in order to control NOx emission, while installation of dust collectors and fuel conversion to city gas have been executed for the purpose of reducing soot and dust.
In addition, there exist the regulated values by law and by agreements with municipalities. Each workplace controls exhaust gas below the regulated emission volumes in terms of concentration and total pollutant load control.

Rate of Emission Volumes to the Regulated Values

Average of workplaces in fiscal 2002

SOx	4% (gross volume)
NOx	38% (gross volume)
Soot & dust	20% (concentration)

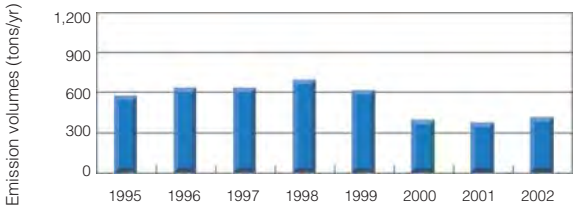
As regards the emission volumes at workplaces in fiscal 2002, NOx showed the results of 31% improvement, but SOx increased 10% and Soot & dust likewise added 20%, compared to the previous fiscal year.

Management of Incinerators

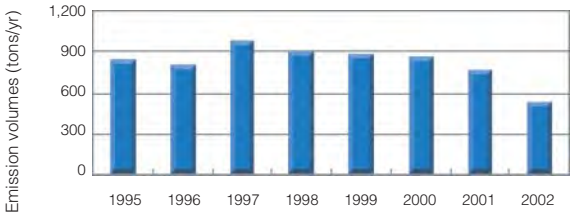
Our company has executed remodeling, renewal and abolishment of the existing incinerators corresponding to the reduction of dioxins viz. strengthened legal control on combustion temperature, CO concentration, etc. Specifically, through reduction of wastes, outsourcing of disposal, etc., 10 out of 22 existed incinerators have been abolished since 1998. In addition, an incinerator was renewed and two incinerators were newly installed at the time of installation of the new production facilities.
14 incinerators are currently in operation, and strict operation control has been conducted in terms of maintenance of the combustion temperature, measurement of exhaust gas concentration, etc. Emission volumes of dioxins have been controlled at 19mg – TEQ in total of 5 workplaces in fiscal 2002 (18mg – TEQ in fiscal 2001).

Mizushima Plant Exhaust gas denitrification unit

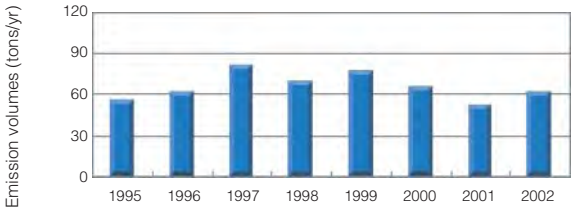
Emission Volumes of SOx



Emission Volumes of NOx



Emission Volumes of Soot & Dust



SOx It is a generic term for Sulfur Oxides, which are noted as SOx. In addition to Sulfur Dioxide (SO_2), Sulfur Trioxide (SO_3), Sulfuric Acid (H_2SO_4) mist, etc. are contained. Sulfur content in fuels such as coal, heavy oil, etc. changes into Sulfur Oxides at the time of combustion, which are contained in exhaust gas and cause air pollution.

NOx Nitric Oxide (NO) and Nitric Dioxide (NO_2) are jointly called as Nitrogen Oxides. Nitrogen in fuels and in the air combines with Oxygen and generates Nitrogen Oxides (NOx). Nitrogen Oxides do harm to human health as well as raise photochemical reaction by ultraviolet rays and generate photochemical oxidants such as ozone in the air.

Soot and dust The term indicates soot which comes out at the time of combustion of fuels and accompanying use of electric furnaces and what not.

Efforts for Water Area/Soil

In order to prevent water pollution caused by effluent at rivers and waterfront areas, each workplace of our company maintains drainage treatment equipment for applying neutralizing treatment, activated sludge process, coagulosedimentation treatment, etc. and monitors drainage water quality.
Laws, ordinances and protocols have determined drainage standard in terms of concentration, total pollutant load control, etc. While regulated values vary with municipalities, each of our workplace discharges its drainage to the public water area after making it clear such restricted limits.

Rate of Average Concentration to the Restricted Limits (in fiscal 2002)
Oxygen demand (COD or BOD) 5 - 71% (Average 47%)

In the aggregate of all workplaces in fiscal 2002, 22% at COD and 40% at total nitrogen respectively decreased compared to the previous fiscal year. Total phosphorus increased by 32% as a result of an increase in manufacturing products.

COD It is an indicator of water pollution. The volume of oxygen consumed at the time organic substances in water have been chemically decomposed by oxidative agent is called chemical oxygen demand (COD). As regards pollution at rivers, biochemical oxygen demand (BOD) is used, which indicates the volume of oxygen consumed at the time organic substances in water have been degraded by the function of microorganism. Both indicate, the more increases the numerical value, the higher climb the degrees of pollution.

Total nitrogen, Total phosphorus These are causative substances of eutrophication at the enclosed water area. Eutrophication means a phenomenon that the enclosed water area such as lakes, marshes, and gulfs come to have high productivity of organisms as an increase of nutritious salts. It occasionally causes to generate the red tide, etc. as a result of an extraordinary increase of phytoplankton such as algae.

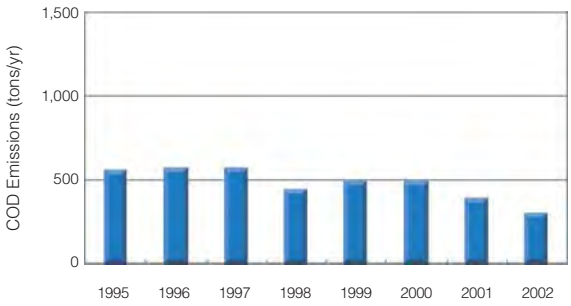
PCB Control

PCB (polychlorinated biphenyl) used to be in use as insulation oil for transformers, condensers, etc., but it turns out that it has strong toxicity and is hardly decomposed. We have 245 pieces of PCB containing machineries used in the past in storage, and intend to continue strict control on them until public PCB decomposition facilities currently under construction in several areas are completed and come into operation.

Soil Contamination

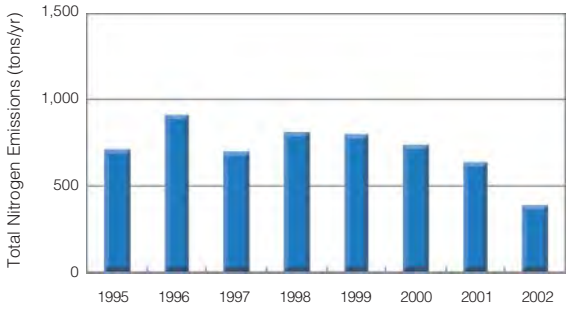
Harm to human health becomes to be worried about, caused by environmental contamination such as soil contamination and underground water contamination. We will take steps to conduct preliminary surveys on status of use of hazardous substances during operation of manufacturing plants, status of utilization of underground water in the neighborhood of manufacturing plants, etc. Hereafter, pursuant to voluntary management and in compliance with Soil Contamination Countermeasures Law and municipalities' ordinances, we will push forward to take measures.

COD Emissions

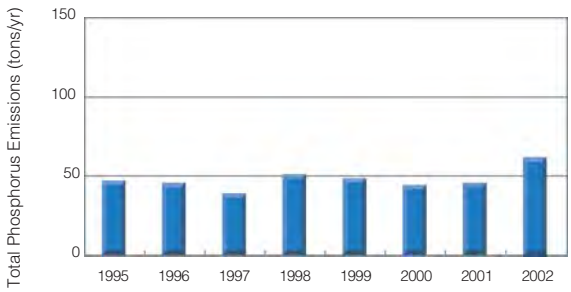


Yokkaichi Plant Activated sludge treatment system

Total Nitrogen Emissions



Total Phosphorus Emissions



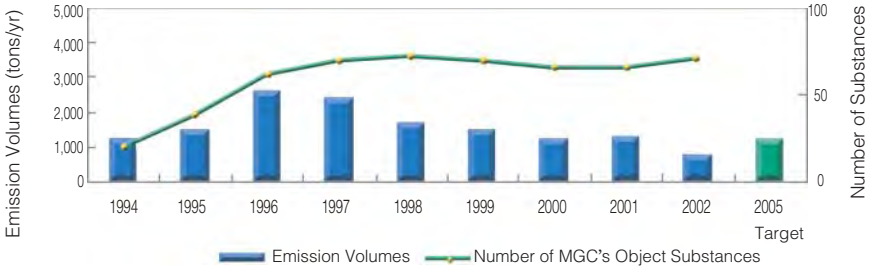
Soil Contamination Countermeasures Law
This is a law to provide conducting investigation of soil contamination for the purpose of preventing harm to human health caused by soil contamination and taking appropriate countermeasures when contamination is turned out. The law was put in force in February, 2003.

Reduction of PRTR Object Substances

Our company has been taking the initiative in reducing the object substances for PRTR survey by Japan Chemical Industry Association (JCIA) since 1995. The object substances for survey by JCIA amounted to 480 kinds in fiscal 2002, 70 substances of which have been handled by our company. Total emission volumes into the air/the water area/soil amounted to 816 tons in fiscal 2002, which have already attained the medium term target started in 2001 earlier than we planned. Suspension of production partly contributed to their decrease, but we reduced the emission volumes principally by means of combustion treatment and strengthening of tank vent gas treatment operation.

PRTR Pollutant Release and Transfer Register. A regulatory system which requires reporting of emission volumes of environment contamination substances into the air, waters and soil and transferred volumes of wastes.

Emission Volumes of JCIA's PRTR Object Substances



Medium Term Target

Making the figures in fiscal 1999 as criteria, to reduce the emission volumes of PRTR object substances into the environment by 20% by fiscal 2005.

Reporting the Data to the Government Based on PRTR Law

Of PRTR law object 354 substances, 43 substances at our company in fiscal 2002 fell under the specified substances. Our workplaces respectively submitted their reports to the Government. The total emission volumes amounted to 522 tons, 15% decrease compared to the previous fiscal year. Emission volumes into the air amounted to 477 tons, those into the waters amounted to 45 tons, and there were no emissions into soil.

Also, total wastes and transfer volumes into sewerage amounted to 536 tons, which showed a 53% decrease compared to the previous fiscal year. Reduction of the externally treated waste volumes through increasing incinerators largely contributed to the fine result.

The table below shows the reported volumes of emission and transfer per substance. We will assess the environmental risks of chemical substances (Chemical risk assessment) on the PRTR survey results, and further proceed with effective reduction measures.

PRTR Law Specified Chemical Substances (Actual Results in fiscal 2002)

Unit : tons/year

Cabinet Order No.	Substance	Air	Waters	Soil	Emission Total	Transfer Total
145	Dichloromethane (Methylene chloride)	310.4	0.0	0.0	310.4	13.2
227	Toluene	73.6	0.0	0.0	73.6	4.8
63	Xylene	64.7	0.0	0.0	64.7	20.4
283	Hydrogen fluoride & its water-soluble salt	1.2	15.0	0.0	16.2	0.1
42	Ethylene oxide	11.0	0.0	0.0	11.0	0.0
311	Manganese & its compound	0.0	10.0	0.0	10.0	4.4
304	Boron & its compound	0.0	8.3	0.0	8.4	1.1
40	Ethylbenzene	6.2	0.0	0.0	6.2	0.0
100	Cobalt & its compound	0.0	5.7	0.0	5.7	3.4
224	1,3,5-Trimethylbenzene	3.7	0.0	0.0	3.7	0.0
312	Phthalic anhydride	1.5	1.0	0.0	2.5	16.0
253	Hydrazine	0.2	1.9	0.0	2.1	0.0
310	Formaldehyde	0.7	1.3	0.0	1.9	0.0
299	Benzene	1.8	0.0	0.0	1.8	0.4
43	Ethylene glycol	0.0	1.5	0.0	1.5	0.0
320	Methyl methacrylate	1.2	0.0	0.0	1.2	30.0
313	Maleic anhydride	0.4	0.0	0.0	0.4	0.0
172	N,N-Dimethylformamide	0.4	0.0	0.0	0.4	13.9
54	Epichlorohydrin	0.2	0.0	0.0	0.2	0.3
272	Bis (2-Ethylhexyl) phthalate	0.0	0.1	0.0	0.1	69.0
	Other 23 substances	0.1	0.0	0.0	0.2	359.2
	43 substances total	477.3	44.9	0.0	522.1	536.1

Reduction of Harmful Air Pollutants

Harmful air pollutants are the substances which may give harm to human health at even low concentration through a long term intake after being emitted into the air. The chemical industry took the initiative with a voluntary management plan in reducing emissions of air pollutants, making 12 substances as the objects, on the basis of the criteria fiscal year of 1995, and has implemented their reducing measures.

We, making our handling 6 substances as the objects, pushed forward reduction of their emissions taking the measures of sealing the facilities hermetically, combustion treatment of exhaust gas, strengthening recovery/cleaning/elimination from exhaust gas, etc.

At the second term plan making 1999 fiscal year as the criteria year, we have continued to reduce emissions of 5 substances excepting 1,3-butadiene which we ceased to handle.

As regards emission volumes in fiscal 2002, Acetaldehyde maintained zero emission and the three substances except for Ethylene oxide decreased compared to the previous year. In fiscal 2003 gross emission volumes are forecast to decrease compared to the fiscal 1999.

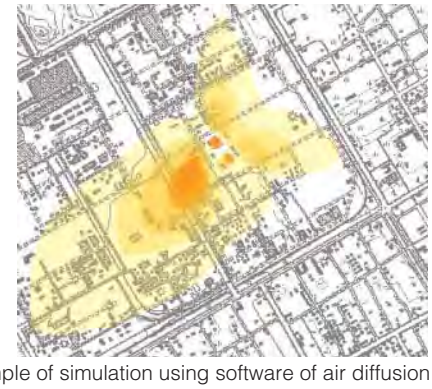
Measures taken in fiscal 2002 to reduce Benzene

1. Strengthening the combustion treatment of exhaust gas containing Benzene (Introduced in 1998)
2. Recovery of Benzene in drain by fractional distillation (Implemented during fiscal 2001)

As far as Ethylene oxide is concerned, we have been studying a more effective method to eliminate hazardous substances. As we plan to install a new system to eliminate harmful substances in fiscal 2004, its substantial reduction will be expected in fiscal 2005.

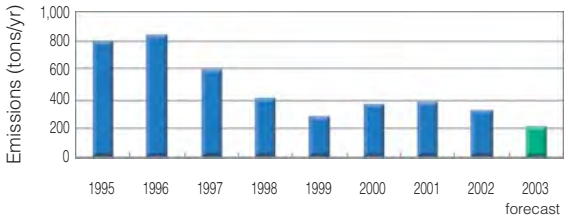
Chemical Risk Assessment

Together with measurement of the concentration of the chemical substances released in the air, our company is engaged in estimate reckoning of air diffusion utilizing related simulation soft. We have made verification on several chemical substances mainly of PRTR specified substances. Based on these, we will draw up an effective reduction plan and implement it.



An example of simulation using software of air diffusion

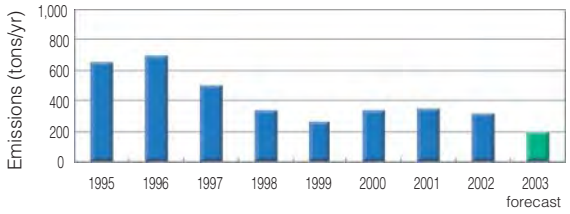
Gross Emission Volumes of Harmful Air Pollutants



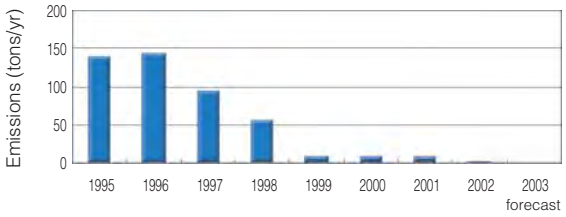
Our Handling Harmful Air Pollutants

- Dichloromethane
- Benzene
- Ethylene oxide
- Formaldehyde
- Acetaldehyde
- 1,3-Butadiene (handling ceased)

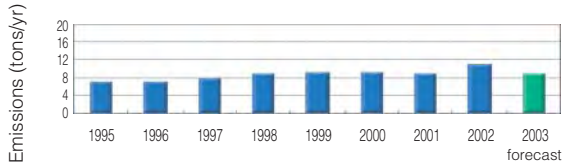
Dichloromethane



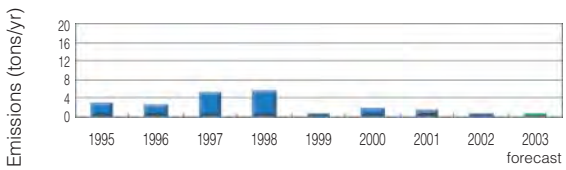
Benzene



Ethylene Oxide



Formaldehyde



Promoting 3R's of Waste

Our company has positively been promoting control of waste generation (Reduce), Reuse, and Recycle, so called 3R's of Waste, and has taken the initiative in reducing wastes.

Waste generation from our process in fiscal 2002 amounted to 110 thousand tons, a decrease of 3 thousand tons from the previous fiscal year. The results were brought about partly because a certain product yield was improved, but primarily due to the then operating status.

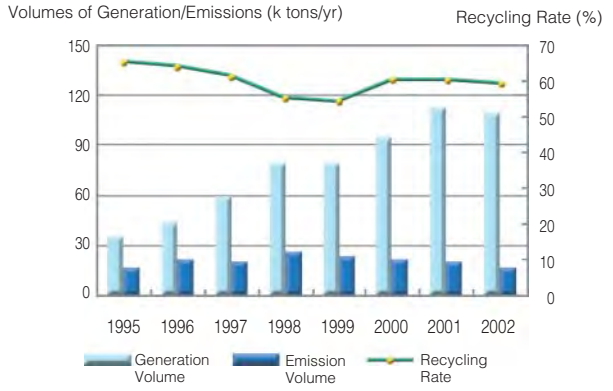
As a result of the initiative in controlling waste generation itself which we deem as our substantial theme, we came to develop a production process of Trimethylolpropane (TMP) without discharging Sodium Formate as a by-product, which we already industrialized.

Outward emission volumes of wastes have steadily been reducing since 1999. This improvement is as a result of the fixation of our activities at our respective workplaces for recycling (recovery and use of valuables, use for raw materials, etc.), and for reducing waste volumes (dehydration and neutralization).

As our recycling rate (recycling rate = recycled volume total ÷ waste generated volume × 100) has transitioned for these three years more or less 60%, we will hereafter strengthen our initiative in separation of wastes and development of application for the recycled materials.

Recovery of valuables by strengthening separation of wastes
Reduction of waste solvents
Commercialization of by-products (residue/low boiling component)
Selling waste plastics as valuables
Materialization of RDF at Tokyo Plant

Volumes of Generation/Emissions of Waste and Its Recycling Rate

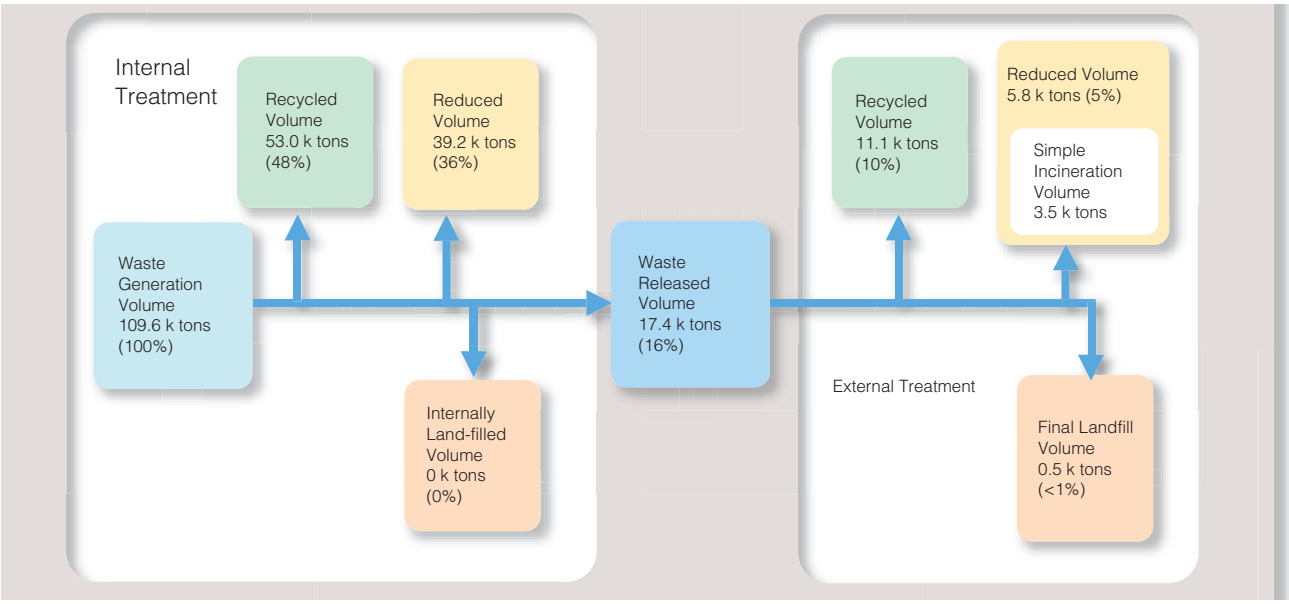


Making Waste Management Appropriate

As far as wastes are concerned, problems relating to inappropriate disposals such as illegal dumping, etc., and hazardous substances such as dioxins, etc. have incessantly emerged one after another. As a result, public control on waste disposal has been intensified more and more. Our company prepared a waste management guideline containing the gist of contents of modified laws and ordinances. In addition, as our initiative in preventing illegal dumping, we will strengthen the manifest management concerning outsourcing waste treatment as well as fill up the standard of selecting trustees and occasional visits to such trustees.

Manifest System The waste generator delivers a manifest (slip), on which each undertaker of collection, transport, and disposal, respectively, writes its necessary items such as work contents. After all processes are completed, a copy of the filled-in manifest is returned to the waste generator. Such manifest circulating system enables the waste generator to manage the stream of processes of the outsourcing waste treatment, and to implement appropriate treatment of waste.

Current Status of Waste Treatment (in fiscal 2002) Unit: k (thousand) tons/year



Zero Emission of Waste

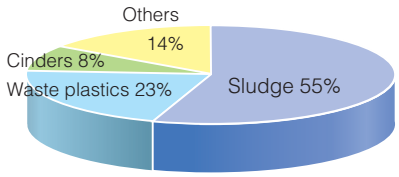
Our company not only has taken the initiative in positively promoting 3R's aiming at zero emission of waste, but also has proceeded with the activities to reduce outward waste emission volume and final landfill volume. In fiscal 2002 we, earlier than we planned, achieved the Responsible Care mid term target of reducing 75% of the final landfill volume in fiscal 1995 by fiscal 2005. We, therefore, clarified the definition of Zero Emission as the next target, and have been promoting activities aiming at the target achievement at every workplace.
Waste emission volume in fiscal 2002 amounted to 17 thousand tons, and final landfill volume was 527 tons. The ratio of the final landfill volume to waste emission volume reduced to 3% in fiscal 2002, as opposed to 6% in fiscal 2001.

Zero Emission of Waste (definition)
While we control waste emission volume and reduce the simple incineration not accompanying heat recovery,
we will achieve Zero Emission by the following two stage methods:
The 1st stage target: to reduce the final landfill volume to not more than 1% of the waste emission volume.
The 2nd stage target: to make the final landfill volume zero.

Reduction of Final Landfill Volume

Externally treated waste volume in fiscal 2002 resulted in the reduction of 3 thousand tons for outward emission volume, 2.6 thousand tons for simple incineration volume, and 0.6 thousand tons for final landfill volume. 4 workplaces out of 9 workplaces as the object have achieved the 1st stage target "To reduce the final landfill volume to not more than 1% of the waste emission volume". Each workplace is engaged in the activities by clarifying its initiatives with the consciousness of "Wastes emitted outside are the resources" for the purpose of reducing the final landfill volume unlimitedly to zero.
Current applications of recycling are fertilizers, cement raw materials, fuels (heat recovery), etc., and the themes hereafter will be to change simple incineration to heat recovery incineration as well as an extension of applications by separation of sludge and waste plastics. For this purpose we will put stress on the point "To search for recyclable enterprisers changing from up-to-this-date search for disposable enterprisers".

Kinds of Final Landfill Wastes

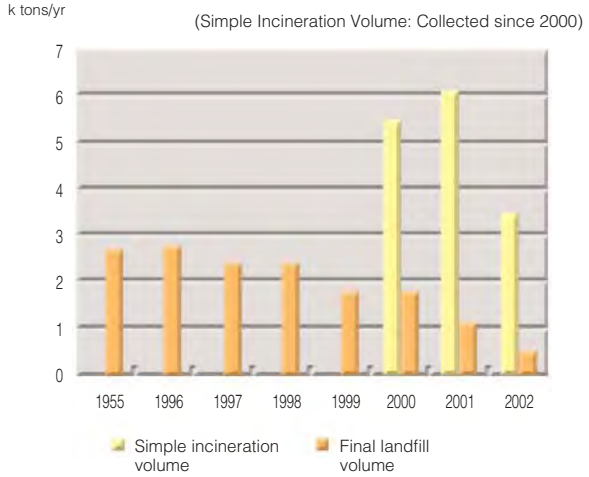


Workplaces Having Achieved Zero Emission

The 1st stage	Tokyo Plant
	Yokkaichi Plant
	Naniwa Plant
	Kashima Plant
The 2nd stage	Tokyo Plant

Transition for Zero Emission

(Simple Incineration Volume: Collected since 2000)



RDF (Refuse Derived Fuel; Solidified Fuel)

RDF at Tokyo Plant is solidified fuel made through compression molding with good quality waste plastics, papers and wood as raw materials. As weather-beaten materials or garbage, etc. are never used for it, ours is a stable RDF. After the recent RDF explosion accident, an inspection by a local fire station and Fire Defense Agency on the RDF manufacturing equipment at Tokyo Plant was made, but there was no guidance or pointing out which might come into question. At present we manage RDF as a combustible substance.

Initiative in the Environment at Distribution

Transportation of Raw Materials/Products

Our company has been taking various measures having reduction of the environmental loads in view at the time of transportation for delivery of raw materials, shipment of products, or between factories. We have been companywidely developing the activities aiming at environmental conservation during transportation together with streamlined logistics. Through these activities, such measures as change of transportation means (modal shift), reduction of transportation volumes/transportation frequency, etc. have been implemented. As a result, both the reduction of environmental loads and the rise of transportation efficiency could be realized at the same time.

Modal Shift

Modal shift from truck transportation to railroad transportation enables to reduce emission of carbon dioxide which causes global warming to approximately 1/10.

Our company intends to convert to railroad transportation by introducing ISO containers and JR containers from the transportation by trucks and lorries. We will proceed with such modal shift likewise from now on, and aim at further reducing emissions of carbon dioxide.

Current our company's transportation modes are as follows:

Marine transportation	1,233 thousand tons
Land transportation	945 thousand tons
Railroad transportation	10 thousand tons
Others (Pipeline, Air transportation, etc.)	853 thousand tons

Tanker for the exclusive use of methanol (marine transportation)

Emission volume of carbon dioxide which is emitted at the time of carrying 1 ton's cargo at the distance of 1 km

Automobile	0.35 kg CO_2/ton km
Railroad	0.02 kg CO_2/ton km
Vessel	0.04 kg CO_2/ton km

Hydrogen peroxide ISO tank container (railroad transportation)

Reduction of Transportation Energy

As far as transportation is concerned, to reduce transportation volumes and/or to reduce transportation frequency link directly with reduction of transportation energy and reduction of exhaust gas.

There are some products which can reduce their transportation volumes by being transported at high concentration. On the other hand, by changing to use larger size containers during transportation from 10 tons to 20 tons, transportation frequency can be reduced. We have proceeded with this strategy obtaining recipients' cooperation and joint efforts, centering large-scale consumers. By this, for a part of our products we could reduce the related transportation frequency by 40% - 50%.

While we will further promote these initiatives, we are now, having rationalization of transportation within sight, under study of minimizing transportation energy through reorganization of production bases, introduction of some swap system incorporating other companies of the same trade, etc.

Encouragement of eco drive

Taking in sober activities such as encouraging eco drive to even transporters, we will aim at synthetic initiatives.

- To stop idling
- Economic velocity
- Inspection of air pressure of tires
- Do not gun the engine when driving a car
- Smooth start

Efforts for Safety during Distribution

While we offer our customers MSDS (Material Safety Data Sheet) regarding handling of our products, we have been making an offer of safety information regarding products handling during transportation by the yellow card, product warning labels, etc. in a body with distributors and trading companies.

Yellow Card, Product Warning Label

At the time of transportation of our products, we not only represent the way of appropriate handling and remarks on the product label, but we make a product warning representation on it.

As regards highly hazardous products, we make drivers of trucks and lorries always carry the Yellow Card (an emergency response card) containing safety information such as hazardousness of the products, emergency measures to take at the time of distributional accident, applicable laws and regulations, etc. and we prepare for prompt treatment on the occurrence of an accident.

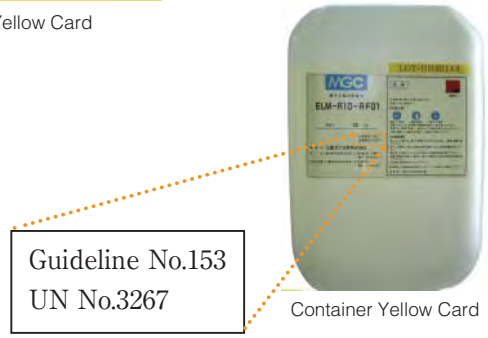
Yellow Card

Product Warning Label

Container Yellow Card

As far as small-scale transportation and consolidation are concerned for which emergency responses are difficult to take, we introduced Container Yellow Card based on “Guideline on Response Measures at an Emergency” issued by Japan Chemical Industry Association.

The product label contains a representation of the product's “UN No.” and “Guideline No.”, which has the function of Yellow Card. This system is made for the purpose of taking appropriate measures against an accident by simply contacting relevant public offices starting with Fire Defense Agency of “Guideline No.”

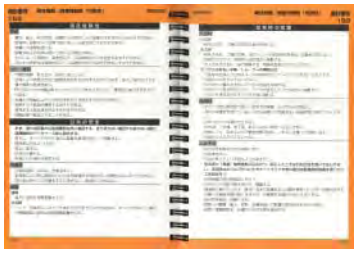


Container Yellow Card

Wide-area Backup System against Accidents in Distribution

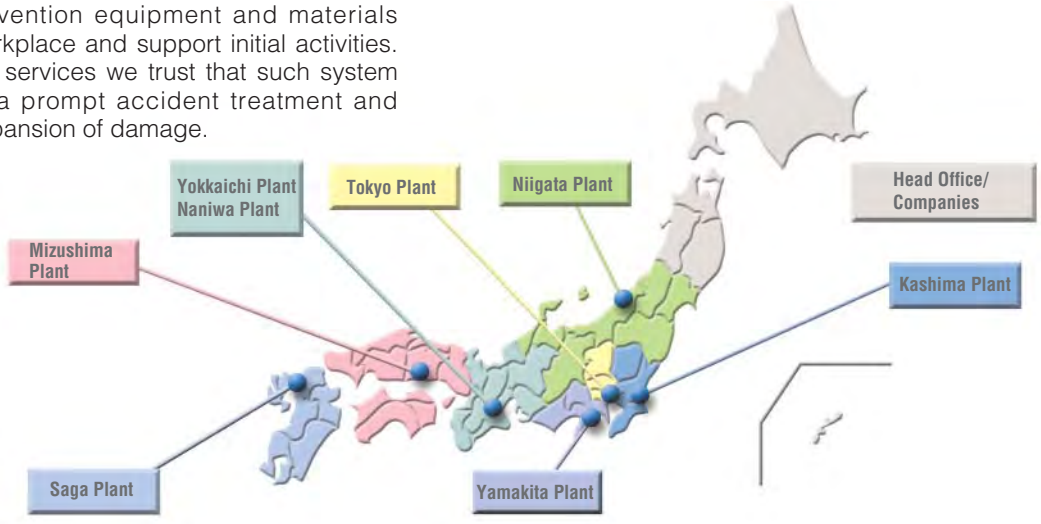
In preparation for the occurrence of leakage of products or fire accidents, we reviewed our emergency contact setup and have built up our wide-area backup system connecting workplaces.

In the event that an accident should have occurred, upon request of the shipping workplace, the workplace in charge of the wide-area backup compartment (a workplace being able to make prompt response), according to the relevant instructions, not only submit to a fire fighting organ necessary information such as MSDS, Yellow Card, technical information, etc., but also offer disaster prevention equipment and materials reserved at the workplace and support initial activities. With these backup services we trust that such system will contribute to a prompt accident treatment and prevention from expansion of damage.



Guideline on Response Measures at an Emergency
(Issued by Japan Chemical Industry Association)

Wide-area Backup Compartment at Accidents in Distribution



Our Affiliates' Environmental/Safety Activities

Our company has 40 affiliated companies under group management including those by the equity method, of which 27 companies are engaged in manufacturing and handling chemical substances. Along with the shift to group management of enterprises, we have proceeded with constructing cooperative setup, and we have been supporting Responsible Care (RC) activities likewise as MGC Group. In 2003, we established Information Exchange Meeting consisting of 11 domestic affiliated companies (34 workplaces). As regards overseas affiliates, we have continuously been supporting their RC activities by visiting their workplaces.

Information Exchange Meeting

Information Exchange Meeting is held twice a year, and exchanged information is pertaining to improvement of the environment/safety, taking up as the object those themes of construction of environmental management system, promotion of small group activities, grasping of the actual status of environmental loads, reduction of PRTR law specified substances, correspondence to green procurement, trend of legal restrictions, etc.

In addition, Information Exchange Meeting has been pushing forward acquisition of ISO 14001 certification for the purpose of effectively operating environmental management system. At present 6 domestic affiliates (13 workplaces) acquired the certification, and 3 overseas affiliates also acquired it.

Affiliates Participating in Information Exchange Meeting

- JSP Corporation
- Japan U-PiCA Co., Ltd.
- Fudow Co., Ltd.
- Japan Hydrazine Co., Inc.
- Japan Pionics Co., Ltd.
- A.G. International Chemical Co., Ltd.
- Mizushima Aroma Co., Ltd.
- Eiwa Chemical Industrial Co., Ltd.
- Toyo Kagaku Co., Ltd.
- Electrotechno Co., Ltd.
- Japan Circuit Industrial Co., Ltd.

● ISO 14001 Certification Acquired Company

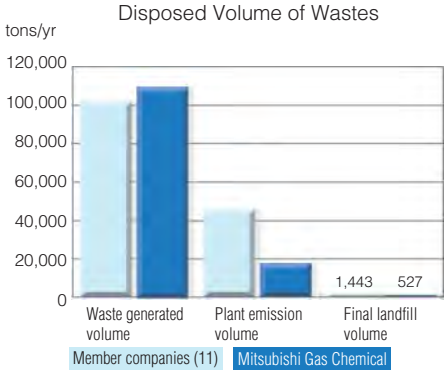
Reduction of Environmental Loads

Concerning grasping actual status of the environmental loads, each affiliate has been implementing the measurement in conformity with the method Mitsubishi Gas Chemical has adopted. Main items are Raw materials, Water, Consumption of energy, Emission volume of carbon dioxide (CO_2), Disposed volume of wastes, etc., and we not only intend to further expand the scope of measurement hereafter, but also we will initiate to take measures for the reduction of environmental loads.

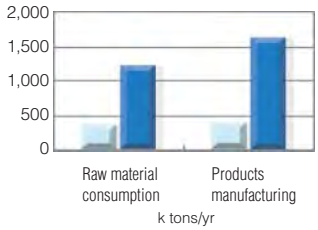
As far as wastes are concerned, we will make the cooperation relationship between our group companies much closer through recycling among our group companies, and effective use of refuse derived fuel (RDF) facilities and waste oil combustion facilities, and will make efforts to reduce them.

The charts below show the performance by total 11 affiliates pertaining to the environmental loads in comparison with our company.

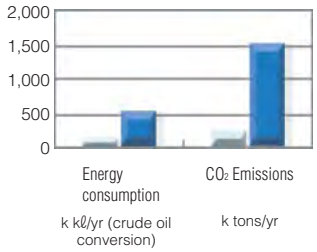
Disposed Volume of Wastes



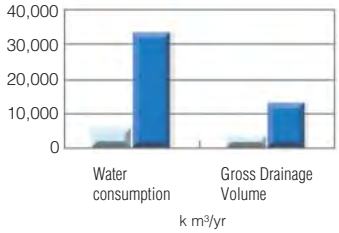
Raw Material Consumption/ Products Manufacturing



Energy Consumption/ CO_2 Emissions



Water Consumption/ Drainage Volume



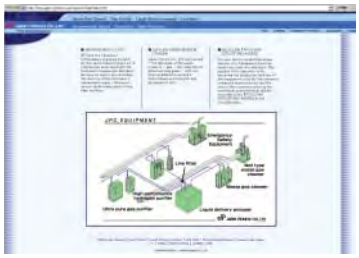
Handling of PRTR Law Specified Substances

As far as the object substances of PRTR law which went into effect in 2001 are concerned, all affiliates have reported the emission and transfer volumes based on the law, and they have taken the initiative in reducing those substances voluntarily.

PRTR (Pollutant Release and Transfer Register) Law Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management. A system that enterprisers disclose such information to the society through administrative organs as emission volumes of chemical substances and transfer volumes of wastes.

Affiliated Companies at Information Exchange Meeting

Affiliated Companies of Mitsubishi Gas Chemical Group consist of largely 2 groups of manufacture/sale of chemicals and manufacture/sale of synthetic resins. Companies in each group are engaged in the development of environmental products and environmental technologies in their respective fields. Biodegradable plastics and recycled products using recovered polystyrene at JSP Corporation, recycling technology of polyester (PET) resins at Japan U-PiCA Co., Ltd., environmental load reduction unit in the field of semiconductor at Japan Pionics Co., Ltd., etc. have acquired appreciation on the market. In manufacturing products all affiliates have acquired ISO 9000s certification, and they have started activities for zero emission of wastes and green procurement which become now social requirements.



JSP Corporation
Manufacture & sale of foamed Plastics
Shinnisseki Bldg 4-2, Marunouchi 3-chome, Chiyoda-ku,
Tokyo 100-0005 JAPAN TEL +81-3-6212-6300
http://www.co-jsp.co.jp/jspi/jsp/index.html

Japan Hydrazine Co., Inc.
Manufacture & sale of hydrazine derivatives and electronic devices
Iino Bldg. 1-1,Uchisaiwai-cho 2-chome, Chiyoda-ku,
Tokyo 100-0011 JAPAN TEL +81-3-3501-5656
http://www.hydrazine.co.jp/eng/index.html

Mizushima Aroma Co., Ltd.
Manufacture & sale of Purified Terephthalic Acid (PTA)
2-3-1,Mizushimanakadori, Kurashiki-shi,
Okayama 712-8072 JAPAN TEL +81-86-446-4570

Electrotechno Co., Ltd.
Manufacture of copper clad laminates for printed circuit board
9-41 Aza-Sugiyama, Oaza-Yone, Nishigo-mura,
Nishishirakawa-gun, Fukushima 961-8031 JAPAN
TEL +81-248-25-5000

Japan U-PiCA Co., Ltd.
Manufacture & sale of unsaturated polyester
Iino Bldg. 2-1-1, Uchisaiwai-cho, Chiyoda-ku,
Tokyo 100-0011 JAPAN TEL +81-3-3503-3981
http://www.u-pica.co.jp/index2.html

Japan Pionics Co., Ltd.
Manufacture & sale of gas purifiers & surface heater
Tokyo Sakurada Bldg.1-1-3, Nishishinbashi,
Minato-ku, Tokyo 105-0003 JAPAN
TEL +81-3-3501-5656
http://www.japan-pionics.co.jp/semicon/eng/index.html

A.G. International Chemical Co., Inc.
Manufacture & sale of Purified Isophthalic Acid (IPA)
Tokyo Sakurada Bldg. 1-3, Nishishinbashi 1-chome,
Minato-ku, Tokyo 105-0003 JAPAN
TEL +81-3-3503-4811
http://www.agic.co.jp/e_agic/index.html

Japan Circuit Industrial Co., Ltd.
Manufacture & sale of printed circuit boad
2-1236, Kamiike-cho, Toyota-shi,
Aichi 471-0804 JAPAN TEL +81-565-88-3718

Fudow Co., Ltd.
Manufacture & sale of performance resins
No.7th Daigo Bldg. 20-5, Nishikamada 7-chome,
Ota-ku, Tokyo 144-0051 JAPAN
TEL +81-3-3737-0611
http://www.fudow.co.jp/e-index.html

Eiwa Chemical Industrial Co., Ltd.
Manufacture & sale of blowing agents
Daido Seimei Co. Kyoto Bldg. 595-3 Sanjo-Sagaru Karasuma-dori, Manjuya-cho, Nakagyo-ku,
Kyoto 604-8161 JAPAN TEL +81-75-256-5131
http://member.nifty.ne.jp/eiwa/page016.html

Toyo Kagaku Co., Ltd.
Engineering plastics molding/resin molding & processing
51-497, Aza-Dodo, Oaza-Morowa, Togo-cho,
Aichi-gun, Aichi 470-0151 JAPAN
TEL +81-561-39-0531
http://www.toyo-kagaku.co.jp/020610.files/frame.htm

Communication on the Environment

Our company is providing information on its efforts for the environmental and safety activities to the public in various ways such as publication of Environmental Report, response to questionnaire survey on the environment, participation in JRCC's Community Dialogue Meetings, etc.

Publication of Environmental Report

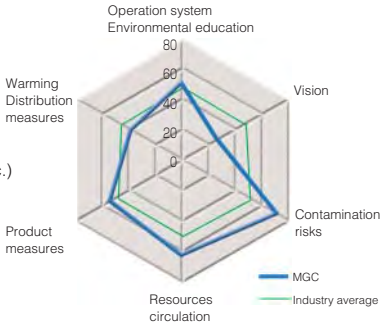
We have published our Environmental Report since fiscal 2001, which we distribute to local people through our workplaces, not to mention to government offices and concerned enterprises. At the 2003 edition we newly publicized "Environmental Accounting" in line with the Guideline of the Ministry of the Environment.
In addition, to enable more people to understand our efforts for the environmental and safety activities, we disclose relevant information on our website.
From fiscal 2004 onward, we plan to publicize Environmental Report in English on our website.
Further, our Niigata Plant is scheduled to issue its own Environmental Report at the site before long. In addition, other plants are also considering to publish such local Environmental Report.

Environmental Report (2001 edition, 2002 edition)
http://www.mgc.co.jp/environment/res/

Response to Questionnaire Survey on the Environment

Our company publicizes its efforts for the environmental and safety through surveys done by Nihon Keizai Shimbun, Inc., Eco Fund, environmental rating organizations, etc.

MGC's Environmental Management Degrees (year 2003) (Nihon Keizai Shimbun, Inc.)



Nihon Keizai Shimbun, Inc.
SOMPO JAPAN INSURANCE INC.
UFJ Synthetic Laboratory
Nikko Eco Fund
Good banker, etc.

Survey on Environmental Management Degrees of Enterprises
Woods of Beech
Green Wings

Participation in JRCC's Community Dialogue Meetings

As a member company of Japan Responsible Care Council (JRCC), we have positively participated in Community Dialogue Meetings held in each district. In 2003 our Mizushima Plant as manager company in Okayama district, and Kashima Plant and Yokkaichi Plant respectively at the regional dialogue meeting in Kashima district and Yokkaichi district, made presentation of examples on the initiative taken in the Responsible Care (RC) activities and intended to have communication with people in the community such as related administrative authorities, neighboring enterprises, local autonomies, etc.

Kashima district February 14: Kashima Plant
re. Activities for product stewardship

Okayama district February 27: Mizushima Plant
RC activities as a whole and an introduction of environment-considering products

Yokkaichi district November 20: Yokkaichi Plant
Keynote announcement on the emission volumes of PRTR substances, etc. of totaling 8 chemical companies

The 3rd JRCC's Okayama District Community Dialogue Meeting

Environment-related Exhibitions

We participate in exhibitions held by various organizations and exhibit environment-considered products thereat.

Flower & Garden Show

NEW Environmental Exhibition

March, 2003	Flower & Garden Show (TOKYO BIG SIGHT)
May, 2003	Eco Greentech (TOKYO BIG SIGHT)
	"MGC Tree-planting System on Roof"
	"Memory Green Crystal", etc.
May, 2003	"2003 NEW Environmental Exhibition" (TOKYO BIG SIGHT)
	Fluorine Wastewater Treatment Agent "DiaFresh F-SON"

We introduced Environmental Management System into our company, and our all plants have acquired ISO14001 certification. Based upon the environmental policy determined at each plant, we strive positively to enhance communication with residents in local communities through landscaping activities in the facilities surrounding area, acceptance of facilities visits, opening of the welfare facilities, participation in local events, and so forth.

Landscaping Activities in the Plant Surrounding Area

Periodical cleaning activities at roads and river banks in the surrounding area of each workplace have been made by our employees. We also participated in traffic control at main intersections in order to contribute to the traffic safety in the community.

Cleaning at roads surrounding our plant

Periodical cleaning, etc. implementing workplaces:
Tokyo Plant Niigata Plant Mizushima Plant Yokkaichi Plant
Osaka Plant Yamakita Plant Kashima Plant Tokyo Research Laboratory
Niigata Research Laboratory Hiratsuka Research Laboratory

Acceptance of Workplace Visits

We at many workplaces have organized open observation visits making as the object local residents as well as children and students from elementary schools to colleges. At Tokyo Plant we held an environmental business observation visit for the members of town assemblies in the neighborhood of the plant. Also at Yokkaichi Plant it was impressive to see high school students in the industry course actually enter the instrument room, write earnestly with a pen to the explanation of a person in charge, and raise questions positively.

Plant visit by high school students (at Yokkaichi Plant)

Workplaces accepting observation visits
Tokyo Plant Niigata Plant Yokkaichi Plant Yamakita Plant
Corporate Research Laboratory Niigata Research Laboratory
Hiratsuka Research Laboratory

Donation of Peracetic Acid for the SARS Measures in China

In June, 2003 for supporting the measures taken for Serious Acute Respiratory Syndrome (SARS), we donated approximately 20 tons of disinfectant peracetic acid (trade name: Diapower) to the Peoples Republic of China. The peracetic acid was delivered to Chongqing City and Ordos City (Inner Mongolia Autonomous Region), diluted to the concentration of 0.1 - 0.5%, and used for sterilization and eliminating virus.

Opening of the Welfare Facilities, Participation in Local Events

We periodically open grounds, gymnasiums, etc. of our workplaces to high school students and children soccer clubs. Niigata Plant provides to the public its premises as a place of recreation for cherry blossom-viewing when the cherry blossom is in full bloom.
Especially at the local festivals, we strive to cultivate mutual friendship with the people in the local communities through acceptance of “Mikoshi (portable shrines)” and “Dashi (float)”, and/or attending to guests.

Row of cherry trees at Niigata Plant

Mizushima port festival

Workplaces opening the welfare facilities, participating in local events
Tokyo Plant Niigata Plant Mizushima Plant Yokkaichi Plant
Yamakita Plant Kashima Plant Corporate Research Laboratory
Niigata Research Laboratory

Donation of a Tank Freight Car to a Freight Railroad Museum

Yokkaichi Plant donated to “Freight Railroad Museum” (located in the premises of Tanwo River Station of Sanki Railroad in Mie Prefecture) its hydrogen peroxide exclusive tank freight car as the first hydrogen peroxide exclusive car in Japan. The tank freight car was the one abandoned for converting to ISO container from privately owned railroad freight car. This Freight Railroad Museum is first-in-Japan museum exclusive for freight transportation by railroad, and was established jointly by Sanki Railroad (Mie Prefecture) and a volunteer organization in September, 2003. Currently, freight transportation by railroad tends to be specialized in containers, and this museum was established aiming at providing a forum for exchange of culture, opinion, friendship, etc. in and out of the district through collecting and exhibiting as a modernized inheritance of freight transportation such wooden freight cars, etc. as are destined to be abandoned with finishing their role. We agreed with such intent and donated the tank car.

Environmental Load Data at Main Plants

Tokyo Plant

Location: 1-1, Niijyuku 6-chome, Katushika-ku, Tokyo 125-8601
Land Area: 120,000㎡
1SO14001:1200-1998-AE-KOB-RVA Rev.1（10/23/1998）

Input Data			Output Data			
Energy	kGJ	501	Air	CO_2	k tons	21
Industrial water	㎥	294		SOx	tons	2
Underground water	㎥	0		NOx	tons	10
City water	㎥	50	Water area	Drainage	㎥	304
Office papers	tons	8		COD	tons	2

Waste	(tons)
Plant discharge	1,258
Outside incineration	561
Final landfill	0

PRTR substances (tons)	Emission	Transfer
Dimethyl amide	0.370	8.700
Hydrazine	0.032	0.000
Hydrogen fluoride & its water soluble salt	0.015	0.000

Main Products

BT resin materials for printed circuit boards
Epoxy materials for printed circuit boards
Info-advanced materials (Magnetooptic elements, Liquid crystal materials)
Oxygen absorbers (AGELESS, AnaeroPack)
Water treatment agents/DEOPOWER/ Environmental agents

Niigata Plant

Location: 3500, Matsuhama-cho, Niigata City, Niigata Pref. 950-3121
Land area: 1,200,000 ㎡
ISO14001: EMSC-1162 (6/5/1998)

Input Data			Output Data			
Energy	kGJ	7,196	Air	CO_2	k tons	450
Industrial water	㎥	2,504		SOx	tons	3
Underground water	㎥	184		NOx	tons	384
River water	㎥	7,435	Water area	Drainage	㎥	6,912
Office papers	tons	9		COD	tons	36

Waste	(tons)
Plant discharge	1,919
Outside incineration	1,127
Final landfill	128

PRTR substances (tons)	Emission	Transfer
Ethylene oxide	11.000	0.000
Methyl methacrylate	1.200	30.000
Methylene chloride	0.360	3.600

Main Products

Methanol/Ammonia/Formalin
Meta-xylene diamine
Methyl methacrylate
Polyamide resin (Nylon MXD6)
Bio-related products (Ubidecarenone)

Mizushima Plant

Location: 3-10, Mizushima Kaigandori, Kurashiki City, Okayama Pref. 712-8525
Land Area: 540,000 ㎡
ISO14001: JCQA-E-0145 (5/29/2000)

Input Data			Output Data			
Energy	kGJ	7,674	Air	CO_2	k tons	251
Industrial water	㎥	11,787		SOx	tons	381
Underground water	㎥	0		NOx	tons	276
City water	㎥	226	Water area	Drainage	㎥	10,692
Office papers	tons	7		COD	tons	124

Waste	(tons)
Plant discharge	1,884
Outside incineration	1,353
Final landfill	224

PRTR substances (tons)	Emission	Transfer
Xylene	64.624	20.632
Hydrogen fluoride & its water soluble salt	16.148	0.027
Manganese & its compound	10.086	4.271

Main Products

Xylenes/Aromatic aldehyde
Neopentyl glycol
Phthalic anhydride
Purified iso(tere)phthalic acid
Tri(pyro)mellitic dianhydride

Yokkaichi Plant

Location: 4-16, Hinagahigashi 2-chome, Yokkaichi City, Mie Pref. 510-0886
Land Area: 185,000 ㎡
ISO14001: JQA-EM0502 (8/13/1999)

Input Data			Output Data			
Energy	kGJ	1,914	Air	CO_2	k tons	180
Industrial water	㎥	8,554		SOx	tons	31
Underground water	㎥	0		NOx	tons	46
City water	㎥	42	Water area	Drainage	㎥	954
Office papers	tons	5		COD	tons	46

Waste	(tons)
Plant discharge	8,544
Outside incineration	231
Final landfill	41

PRTR substances (tons)	Emission	Transfer
Toluene	67.200	4.320
Methyl ethyl ketone	46.000	0.000
Hydrazine	2.088	0.000

Main Products

Hydrogen peroxide/Hydrogen peroxide for electronic materials
Hydrazine hydrate
Sodium percarbonate
ELM Clean (Release agent for liquid crystal)
Polyacetal resin (Iupital)

Yamakita Plant

Location: 950 Kishi, Yamakita-machi, Ashigarakami-gun, Kanagawa Pref. 258-0112
Land Area: 63,000 ㎡
ISO14001: JQA-EM0859 (5/12/2000)

Input Data			Output Data			
Energy	kGJ	578	Air	CO_2	k tons	7
Industrial water	㎥	0		SOx	tons	7
Underground water	㎥	200		NOx	tons	4
Dam discharged water	㎥	7,200	Water area	Drainage	㎥	7,377
Office papers	ton	1		COD	tons	10

Waste	(tons)
Plant discharge	419
Outside incineration	86
Final landfill	6

PRTR substances (tons)	Emission	Transfer
2-aminoethanol	0.000	0.016
Ethylene glycol	0.000	0.021
Cyclohexylamine	0.000	0.024

Main Products

Super-Pure hydrogen peroxide
Persulfates
(Ammonium, Soda, Potassium, etc.)
Chemical polishing fluids/Peracetic acid

Kashima Plant

Location: 35 Higashi Wada, Kamisu-machi, Kashima-gun, Ibaraki Pref. 314-0102
Land Area: 332,000 ㎡
ISO14001: JQA-EM0345 (2/26/1999)

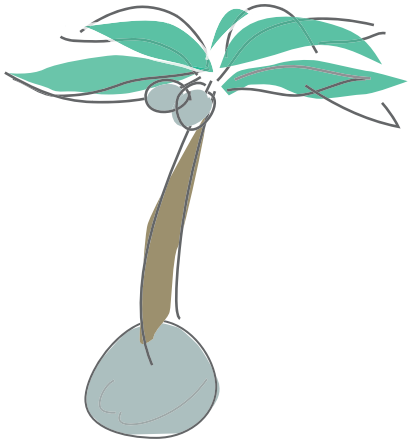
Input Data			Output Data			
Energy	kGJ	2,610	Air	CO_2	k tons	46
Industrial water	㎥	615		SOx	tons	0
Underground water	㎥	0		NOx	tons	9
Pure water	㎥	882	Water area	Drainage	㎥	1,564
Office papers	ton	1		COD	tons	91

Waste	(tons)
Plant discharge	620
Outside incineration	10
Final landfill	7

PRTR substances (tons)	Emission	Transfer
Dichloromethane	179.000	5.015
Chlorodifluoromethane	1.100	0.000

Main Products

Polycarbonate resin (Iupilon)
Hydrogen peroxide



三菱ガス化学株式会社

MITSUBISHI GAS CHEMICAL COMPANY, INC.

●Essential factors of this report

Object Organization：Domestic workplaces listed in Company Profile

Object Scope：Reports focusing on environmental and safety activities and environmental performance in Responsible Care activities by MGC

Object Period：fiscal 2003 (1/1/2003 - 12/31/2003)

But environmental performance data are based on 4/1/2002 - 3/31/2003.

Date of Issue：March, 2004

Next Date of Issue：March, 2005

●Editing Post & for further information contact:

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