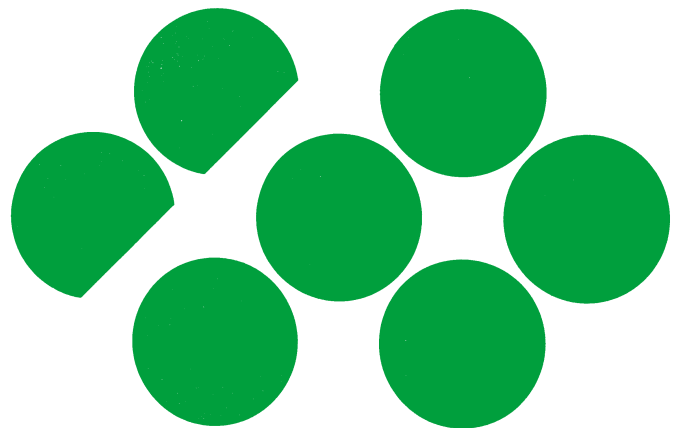


Health, Safety, and the Environment

2000



KYOWA

From the President

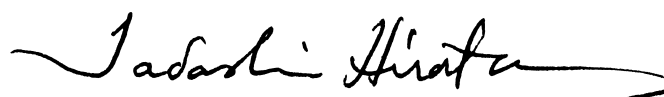
Based on its corporate philosophy to “contribute to the health and well-being of people worldwide by creating new value with the pursuit of advancements of life science and technology,” Kyowa Hakko Kogyo Co., Ltd., carries out its business activities in a wide range of fields that include pharmaceuticals, biochemicals, chemicals, liquor, and food.

Since its establishment, Kyowa Hakko has carried out activities centered on the manufacture of fermentation products that use such naturally derived raw materials as molasses. From the beginning, the Company has worked to recycle the waste liquid that results from fermentation, which makes up more than 90% of its waste. Kyowa Hakko’s current “Zero Emission” thinking embodies this approach to preserving the environment. “Green Chemistry,” a production process that has no serious environmental impact, has been the core of manufacturing technology at the Company.

As one of its Management Guidelines, Kyowa Hakko has formulated an Environment and Safety Policy to “work to protect the environment and maintain safety and also provide products with consideration of the environment and safety.” Specifically, the Company established its “Basic Policies for Health, Safety, and the Environment, and Product Safety” with the aim of ensuring customer safety while enhancing product quality to contribute to the betterment of society. At the same time, Kyowa Hakko is undertaking such activities related to safety and environmental protection as acquiring ISO 14001 certification, adhering to Responsible Care guidelines, and undertaking the Kyowa Eco-Project, Green Procurement, and a Green Office Plan.

This report is intended to promote an understanding of our thinking and approach to preserving health, safety, and the environment.

September 1, 2000



Dr. Tadashi Hirata, President

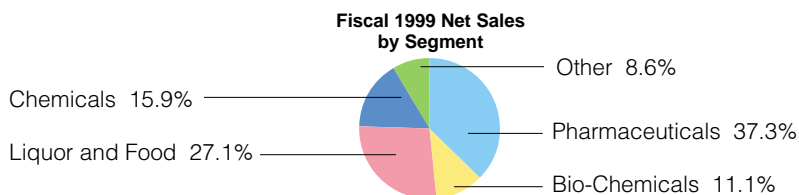
Notes: 1. This report mainly covers environmental and safety activities carried out at Kyowa Hakko’s eight main domestic plants, including those of Kyowa Yuka Co., Ltd., as well as overseas production sites in fiscal 1999, ended March 31, 2000.
2. In this report, “the Company” refers to Kyowa Hakko Kogyo Co., Ltd., and Kyowa Yuka Co., Ltd.

Company Profile

Net Sales: ¥374,910 million (on a consolidated basis for the fiscal year ended March 31, 2000)

Net Income: ¥11,274 million (on a consolidated basis for the fiscal year ended March 31, 2000)

Sales by Business Segment:



Paid-in Capital: ¥26,745 million (as of March 31, 2000)

Number of Employees: 7,866 (on a consolidated basis)

Established: July 1, 1949

Domestic Offices:

- Offices and Branches: Tokyo, Osaka, Kyushu, Nagoya, Sapporo, Sendai, Hiroshima
- Plants: Hofu, Ube, Sakai, Fuji, Tsuchiura, Moji, (Kyowa Yuka Co., Ltd.: Yokkaichi, Chiba)
- Research Laboratories: Tokyo Research Laboratories, Pharmaceutical Research Institute, Technical Research Laboratories, Toxicological Research Laboratories, Sakai Research Laboratories, Foods & Liquors Research Laboratories, Tsukuba Research Laboratories, (Kyowa Yuka Co., Ltd.: Yokkaichi Research Laboratories)
- Sales Branches: 63 throughout Japan

Overseas Offices: 20 bases in 10 countries

- Plants: Biokyowa Inc. (U.S.A.), Fermentaciones Mexicanas, S.A. de C.V. (Fermex) (Mexico), Agroferm Hungarian–Japanese Fermentation Industry Ltd. (Agroferm) (Hungary)

Report Outline

1. STATUS OF ENVIRONMENTAL PROTECTION ACTIVITIES

- 1) In fiscal 1999, the Company reduced its final waste output (waste for landfill disposal) to 63% of the 1998 level.
- 2) The Company is making concerted efforts to reach its energy conservation goals. Achieving its goal for the chemical products division is proving difficult, but 80 thousand tons of carbon dioxide were recycled as a product in fiscal 1999.
- 3) The Company reduced the emissions of legally restricted chemical substances to 27% or 38% of the 1998 level in fiscal 1999.
- 4) The Company achieved effective improvements in chemical oxygen demand (COD) levels in its wastewater as well as in the emissions volume of dust in its exhaust gases.

Classification	Item	FY1999 performance				Target (Measure)	FY1999 Expense (million yen)
		Actual	Compared with FY90	Compared with FY98	Self- evaluation*3		
1) ① Pollution control costs	Total volume of wastewater (thousand tons/year)	60,813	74%	92%	O	—	2,154
	COD levels (tons/year)	1,153	40%	93%	O	Reduction from 1999 COD levels to 1,642 tons	
	SO _x emissions (tons/year)	1,305	72%	94%	O	(Increase use of low-sulfur fuels)	
	NO _x emissions (tons/year)	934	120%	110%	X	20% reduction from 1998 emissions levels by 2001	
	Dust emissions (tons/year)	43	33%	51%	O	—	
	Chemical substance emissions						
	Adverse air pollutants (tons/year)	38	9%*1	27%	O	30% reduction of 1996 emissions levels by 1999	
	Substances regulated by PRTR Law (tons/year)	64	27%*2	38%	O		
② Global environmental protection costs	Unit energy consumption (crude oil basis)					3% improvement over 1998 levels by 2001	365
	Kyowa Hakko (kl/hundred million yen of sales)	58.7	72%	95%	O		
	Kyowa Yuka (l/ton of production)	300	108%	109%	X		
③ Resource recycling costs	Final waste output (tons/year)	2,715	0.4%	63%	O	50% reduction of 1998 levels by 2001	2,348
All other environmental protection costs 2) ~ 6)							1,687
Total							6,554

(Data is for Kyowa Hakko and Kyowa Yuka in accordance with the Japanese Environment Agency's environmental accounting guidelines.)

*1 compared with FY96

*3 Self-evaluation: O means there was an improvement of more than 10% compared with the previous FY.

*2 compared with FY97

O means there was an improvement of less than 10% compared with the previous FY.

X means there was no improvement compared with the previous FY.

2. SAFETY ACTIVITIES

- 1) In fiscal 1999, the Company ranked among the top companies in the industry for workplace safety, with an occupational injury frequency rate* of 0.1.
- 2) The Yokkaichi Plant won the Ministry of Labor Award for a level five safety record (18.0 million man-hours, or 23 years, of accident-free operations) and received the Minister of Labor Award for Safety.

Fiscal year	Name of award	Plant receiving award
1999	Ministry of Labor Award, level two (9.3 million man-hours accident-free safety record)	Ube Plant
	Ministry of Labor Award, level five (18.0 million man-hours accident-free safety record)	Yokkaichi Plant
	Ministry of Labor Award, level one (6.2 million man-hours accident-free safety record)	Fuji Plant
	Fire Defense Agency Commissioner's Award (Excellent business facility handling hazardous materials)	Ube Plant
2000	Fire Defense Agency Commissioner's Award (Excellent business facility handling hazardous materials)	Fuji Plant
	Minister of Labor Award (Safety)	Yokkaichi Plant

*Frequency rate: Number of occupational injuries per 1 million man-hours

3. NEW ACTIVITIES

- 1) ISO 14001 certification has been achieved at four plants and all eight main plants plan to achieve certification within 2000. The Company is working to strengthen environmental management activities in subsidiary companies.
- 2) The Kyowa Eco-Project is being promoted at all Company production sites to conserve energy and reduce final waste output by half.
- 3) The Company has promoted environmental management, such as Green Procurement and the Green Office Plan, in its administrative offices.

Environmental Accounting

1. ENVIRONMENTAL ACCOUNTING

The Company produces products in a variety of fields, from bulk products to such consumer products as pharmaceuticals, biochemicals, chemicals, liquor, and food. Environmental protection expenses vary in different fields (see graph at right). A large portion of environmental protection expenses are concentrated in bulk production, which has an impact on the environment. The Company gives priority to the environmental protection expenses—recycling costs, in particular—incurred by its consumer products.

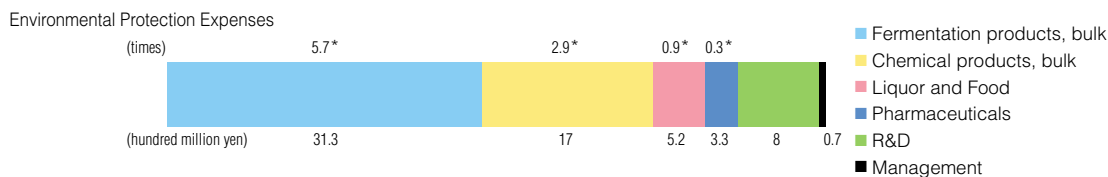
In line with the Japanese Environment Agency's guidelines, all environmental protection costs and activities for fiscal 1999 at the Company's eight domestic plants are disclosed.

Environmental accounting as shown on this page encompasses both operating expense (page 4) and additional expenses. Primary additional expenses comprise resource recycling costs in bulk production and R&D costs for environmental preservation as defined by corporate policies.

Environmental protection costs			
Classification	Principal activities	Investment (millions of yen)	Expense (millions of yen)
1) All environmental protection costs charged to operations incurred in controlling the environmental impact of production and service activities (operating costs)		1,654	4,867
Breakdown	① Pollution control costs	707	2,154
	② Global environmental protection costs	71	365
	③ Resource recycling costs	875	2,348
2) Environmental protection costs incurred in upstream and downstream stages of products and services (upstream and downstream costs)	<ul style="list-style-type: none"> ● Provision of environment-preserving products and services ● Recycling, recovery, and reuse of receptacles ● Outsourcing recycling of packaging 	207	253
3) All environmental protection costs incurred in management activities (environmental activities costs)	<ul style="list-style-type: none"> ● Acquisition of ISO 14001 certification ● Independent analysis of environmental aspect ● Labor related to environmental management organization 	20	320
4) All environmental protection costs incurred in R&D (R&D costs)	<ul style="list-style-type: none"> ● R&D of products that contribute to environmental protection ● R&D for the control of environmental impact incurred at the production level 	0	805
5) All environmental protection costs incurred in community activities (community activities costs)	<ul style="list-style-type: none"> ● Environmental improvement activities, including nature conservation, greening, beautification, and landscaping 	12	162
6) Environmental protection costs incurred in redressing environmental damage (environmental damage costs)	<ul style="list-style-type: none"> ● Pollution load levy 	0	147
Total		1,893	6,554

Item	Action	Amount
Total investment	New construction of pharmaceutical research laboratory and installation of production equipment for investigational new drugs, etc.	13,089
Total R&D costs	Research for new products and technologies	26,360
Sale of resources related to ③ of 1)	Fertilizer containing organic materials, materials enriched with <i>shochu</i> distillate, waste catalysts, etc.	587
Sale of resources related to 2)	Aluminum cans, drums, bottle cullets, etc.	2

Note: Expenses include depreciation, labor costs, utility fees, costs of materials, repairs, contracting costs, and commission costs.



$$\text{*Ratio: } \frac{\text{Environmental protection expenses}}{\text{Sales by field}} \times 100 \text{ (times)}$$

- Scope of summary: Kyowa Hakko, Kyowa Yuka
- Time period: April 1, 1999–March 31, 2000

(million ¥)

Effect			
Focus	FY1999 performance	Comparison with FY1998	Remarks (Future measures)
Water pollution control: ● Total volume of wastewater ● COD levels Air pollution control: ● SO _x emissions ● NO _x emissions ● Dust emissions	60.8 million tons 1,153 tons	5 million-ton decrease 92-ton decrease	Reduced the volume of cooling water used Removed 4,454 tons of COD
Unit energy consumption (crude oil basis): ● Kyowa Hakko ● Kyowa Yuka	58.7-kl/hundred million yen of sales 300-l/ton of production	2.9-kl/hundred million yen of sales decrease 26-l/ton of production increase	Due to reduction in production of high-energy consumption products Due to increase in small-scale, multiproduct production
CO ₂ utilization	80,000 tons	2,000-ton increase	Raw material for oxo alcohol production
Waste ● Process waste materials ● Final waste output (Waste for landfill disposal)	225,000 tons 2,715 tons	93,000-ton decrease 1,575-ton decrease	Reductions achieved through change in fermentation raw materials and processes Increment of recycling
<ul style="list-style-type: none"> ● Achieved the easier recycling of PET bottles for <i>shochu</i> due to switch from direct printing on bottles to a transparent label that can be removed without leaving traces of glue ● Promoted the use of recycled 1.8 liter bottles. Carried out the recovery and recycling of <i>shochu</i> bottles in selected areas 			
<ul style="list-style-type: none"> ● ISO 14001 certification achieved at Hofu and Tsuchiura plants in FY1999 (Two additional plants were certified in FY2000, plans to achieve certification for all eight main plants in FY2000) 			
<ul style="list-style-type: none"> ● Supplied raw material for lubricating oil for air conditioners that uses alternatives to CFCs ● Made efforts to lessen environmental impact through process improvements and the pursuit of the R&D of substitute materials ● Avoided use of such chemical substances as organochlorine solvents in production process 			
<ul style="list-style-type: none"> ● Worked on such environmental measures as nature conservation, greening, beautification, and landscape conservation ● Published first environment and safety report, disclosing the status of environmental and safety activities in business operations 			

Significant effects

- Kyowa Hakko ceased the ocean dumping of fermentation waste materials, replacing such dumping with recycling (98.8%).
- Kyowa Hakko began the production of fertilizer containing organic materials under its energy-saving and environmental protection system.
- Progress was made in the development of technology to control odor at fermentation plants that involved the installation of new equipment.
- In fiscal 1999, Kyowa Yuka used 80,000 tons of CO₂ as a raw material in oxo alcohol.
- The Company reduced its volume of final waste output to 63% of the 1998 level.
- The Company achieved a vast reduction of emissions of specified chemical substances as well as dust in exhaust gas.

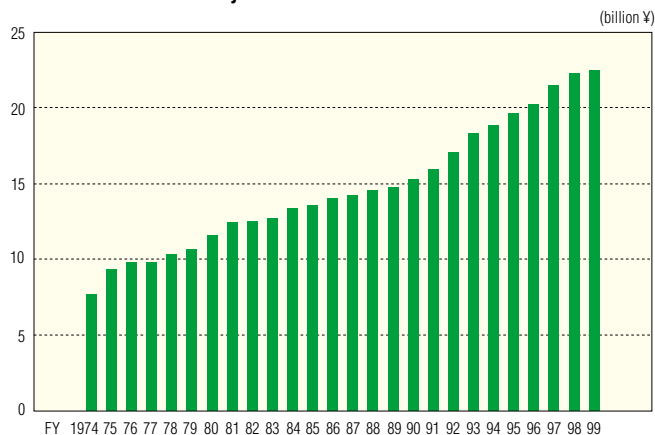
2. ENVIRONMENT- AND SAFETY-RELATED INVESTMENT AND EXPENSE

The Company's cumulative capital investment in environment- and safety-related facilities and cumulative operating expense since 1974 are shown in the graphs below.

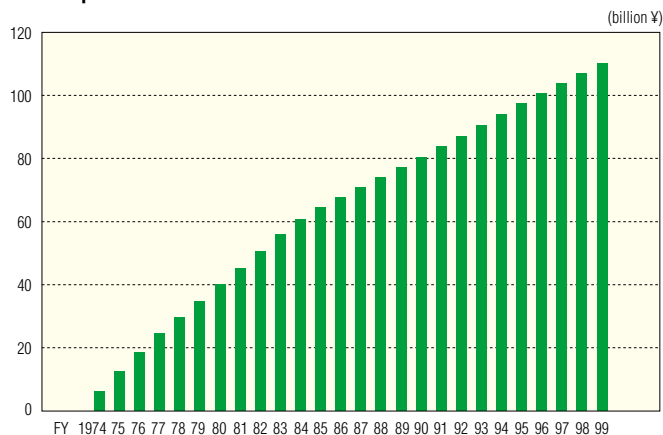
For the most recent 10-year period, the Company's operating expense for environmental facilities has averaged more than ¥3.0 billion annually. Most of this expense has been related to recycling process waste material and wastewater treatment.

In accordance with the Environment Agency's environmental accounting guidelines for 2000, environmental protection costs cover a wide range of activities, including R&D and the manufacture and sale of recycled products as well as such indirect expenses as labor costs incurred by the environmental management organization (see pages 2-3).

● Trends in Cumulative Capital Investment for Environment- and Safety-Related Facilities



● Trends in Cumulative Operating Expense for the Operation of Environmental Facilities



An Outline of Environmental Protection Activities

To minimize the environmental impact of its business activities, the Company strictly adheres to environment-related laws and the local regulations of government bodies and formulates self-imposed management standards that are even more stringent than prevailing laws and regulations. In addition, the Company carries out environmental protection activities based on ISO 14001, the international standard for environmental management systems. In fiscal 1999, the Company's Hofu and Tsuchiura plants both received ISO 14001 certification. In fiscal 2000, the Fuji and Yokkaichi plants also received certification, and the remaining four plants are scheduled to obtain certification within fiscal 2000.

The Company is establishing concrete reduction goals for important environmental elements as part of the Kyowa Eco-Project. Environmental policies at each plant are disclosed on Kyowa Hakko's Web page.

1. PRINCIPAL ENVIRONMENTAL MANAGEMENT ACTIVITIES

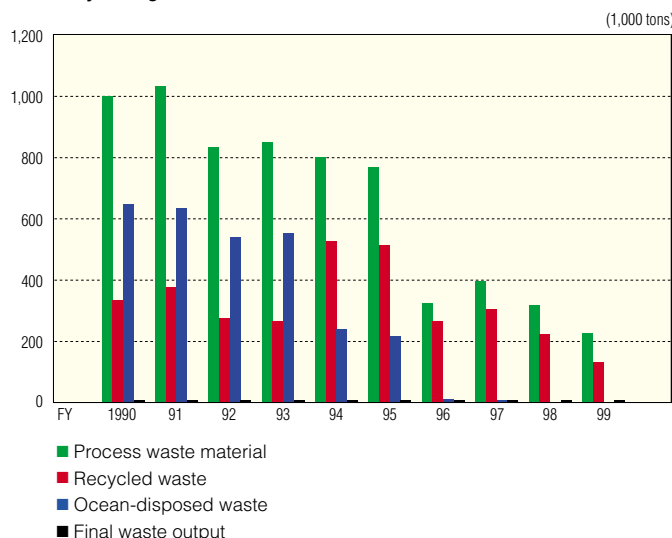
- 1964 Production of organic fertilizer using recycled fermentation mother liquor at Hofu Plant
- 1968 Wastewater treatment facility introduced at Hofu Plant
- 1971 Wastewater combustion facility introduced at Yokkaichi Plant
- 1973 Creation of Companywide Safety and Environmental Management System
Acetaldehyde removal facility introduced at Yokkaichi Plant
- 1975 Wastewater treatment facility introduced at all plants
Flue gas desulfurization equipment introduced at Yokkaichi Plant
- 1977 Kyowa Hakko wins first Director General of the Environment Agency Award
- 1979 Introduction of bionitrification and dephosphorization process to wastewater treatment facilities
- 1981 Under a Companywide energy conservation project, Kyowa Hakko achieves a 20% reduction in energy use
- 1992 Responded to London Convention on ocean dumping of industrial waste
- 1993 Formulation of policies for environmental protection
- 1996 Implementation of Responsible Care
- 1997 Recycling of *shochu* distillate begins at Moji Plant, Kyowa Hakko ends ocean dumping
- 1998 Vast reduction of COD levels in wastewater
Installation of cogenerator at Chiba Plant
- 1999 Implementation of deodorizing facilities at Hofu Plant
ISO 14001 enforcement at all plants
Publication of the *Health, Safety, and the Environment Report*
Installation of new organic fertilizer production facility under the energy-saving and environmental protection systems

2. WASTE REDUCTION EFFORTS

As shown in the graph at right, the Company made a 77% cut in waste output levels compared with fiscal 1990, largely due to the substitution of raw materials, improvements in production processes, and recycling in process. Also, ocean-disposed waste, which made up a large percentage of the volume of waste treated (ocean-disposed waste + final waste output) by the Company, was reduced gradually, between 1994 and 1997. In the summer of 1997, the Company terminated ocean dumping by introducing recycling. In 1999, approximately 98.8% of waste was recycled into fertilizer and feed. Through efforts to promote recycling at all Company business sites, in 1999 the Company achieved a reduction in final waste output to 63% of the 1998 level.

Moreover, the Company is now working to reduce the remaining final waste output to 50% of the 1998 level by 2001.

● Yearly Changes in the Volume of Industrial Waste



3. COD REDUCTION

In fiscal 1999, chemical oxygen demand (COD) had been reduced 60% from the 1990 level (7% reduction from the 1998 level). To remove nitrogen and phosphorous from wastewater as well as improve COD, the Company has taken various steps to clean wastewater, including the introduction of clean raw materials and such process improvements as the establishment of wastewater treatment technologies. In fiscal 1999, the Company achieved an 8% reduction of the 1998 level of wastewater volume.

4. AIR POLLUTION CONTROL

SO_x, NO_x, and dust emissions by the Company have been reduced to levels below those set by laws and standards of regulations.

SO_x Emissions

As a countermeasure for reducing sulfur oxide (SO_x) emissions, the Company uses fuel oil with a low sulfur content and installs equipment to remove sulfur from exhaust gas. In fiscal 1999, therefore, there was a slight decrease in the Company's SO_x emissions. The Company continues to increase its use of fuel oil with low sulfur content.

NO_x Emissions

To reduce nitrogen oxide (NO_x) emissions, the Company is making thorough checks of boiler equipment. However, NO_x emissions increased 10% from the 1998 level in fiscal 1999.

In fiscal 2000, denitration equipment was installed at the Yokkaichi Plant with the aim of further reducing NO_x emissions. The Company is working to reduce NO_x emissions by 20% from the 1998 level in 2001.

Dust Emissions

The Company is making concerted efforts to maintain a low level of smoke and soot emissions and is installing ash collectors. In fiscal 1999, the Company achieved a 49% reduction of the 1998 level of dust emissions.

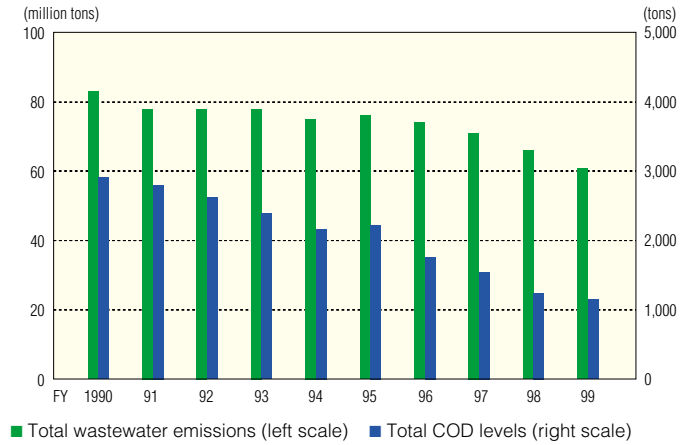
Dioxin Emissions

The Company has checked the amounts of dioxin emissions in exhaust gas from all its incinerators that are subject to emission restrictions and confirmed that these incinerators complied with the emission standards that will be in effect from 2002. Furthermore, the Company is currently designing its response to new equipment maintenance standards that will take effect in December 2002.

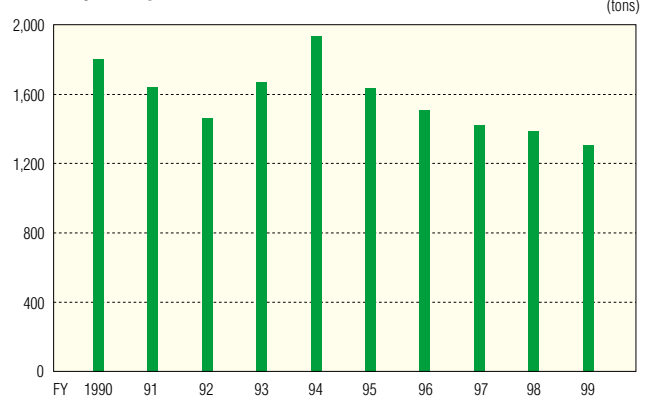
Substances that Damage the Ozone Layer

The Company's use of CFCs is limited to coolants for air conditioners and freezing equipment. Due to the strict control of operations, the level of the Company's CFC emissions does not have an adverse effect on the ozone layer.

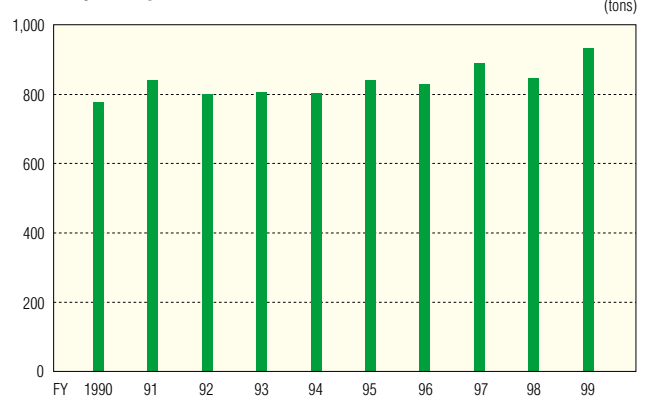
● Yearly Changes in the Total Volume of Wastewater and COD Levels



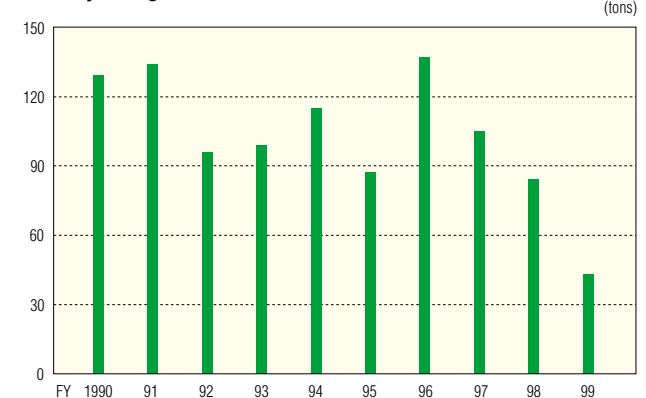
● Yearly Changes in the Volume of SO_x Emissions



● Yearly Changes in the Volume of NO_x Emissions



● Yearly Changes in the Volume of Smoke and Soot Emissions



5. CO₂ REDUCTION (Energy Saving)

Kyowa Hakko is steadily progressing toward achieving a 20% reduction in unit energy consumption* by 2010 compared with the 1990 level.

In fiscal 1999, Kyowa Yuka, a subsidiary that manufactures chemical products, saw a 9% increase in unit energy consumption from the 1998 level. However, it carries out carbon dioxide fixation using the oxo process and uses approximately 80,000 tons of carbon dioxide in the manufacture of chemicals. Along with the increase in chemical production, Kyowa Yuka has introduced cogeneration equipment and is making a concerted effort to conserve energy.

At present, all Company plants are working actively to conserve energy and meet the Company's goal of reducing the unit energy consumption level to 3% below the fiscal 1998 level by 2001.

* Energy consumption per unit of production is expressed on a crude-oil-conversion basis. It is not possible to make a uniform comparison of the amount of basic energy units used by Kyowa Hakko, which engages in the small-volume production of pharmaceuticals and other products, and Kyowa Yuka, which is involved in the production of chemical products. Therefore, the amounts of unit energy consumption by Kyowa Hakko and Kyowa Yuka are listed separately.

6. ENVIRONMENTAL MEASURES IN OVERSEAS PLANTS

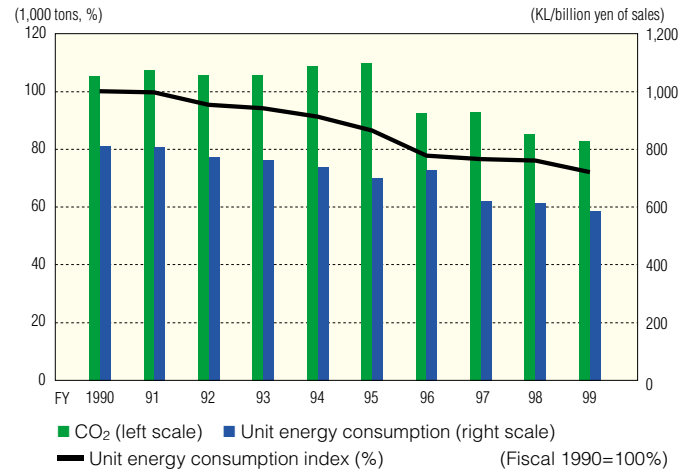
Kyowa Hakko's overseas plants, like domestic plants, plan for safety and environmental protection, using environment-friendly technologies that are developed at domestic plants.

Kyowa Hakko's three overseas plants that produce amino acids for use in livestock feed are close to both raw material supplies and customers. The principal environmental measure at these plants is the manufacture of fertilizer and livestock feed through recycling. The plants recycled over 66% of their process waste material in fiscal 1999 and carry out wastewater treatment of the remaining 34%. These three plants are making efforts to improve their recycling rates.

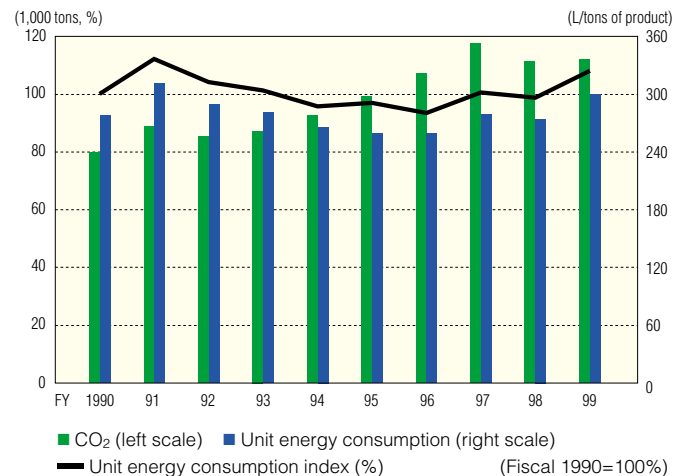


Biokyo Inc. (U.S.A.)

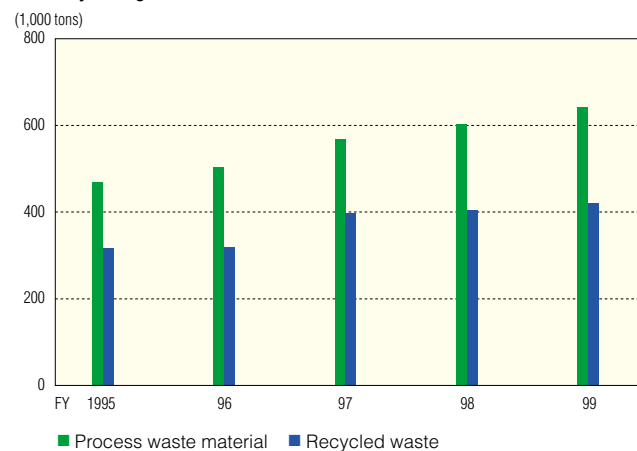
● Yearly Changes in Unit Energy Consumption (Kyowa Hakko)*



● Yearly Changes in Unit Energy Consumption (Kyowa Yuka)*



● Yearly Changes in the Volume of Industrial Waste at Three Overseas Plants



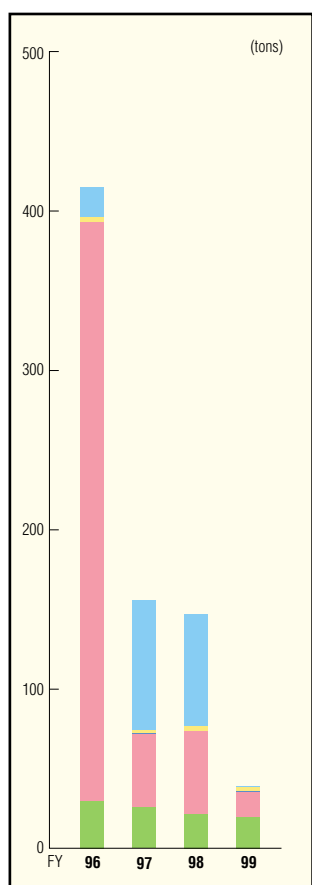
7. PRTR (POLLUTANT RELEASE AND TRANSFER REGISTER)

1) Emissions of 12 Adverse Air Pollutants Selected by the JCIA

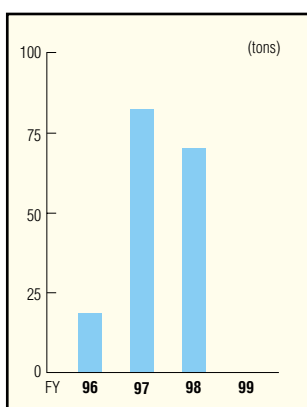
PRTR is a system for surveying and registering the amount of chemical products in the environment during all phases of the product life cycle—from development to manufacture, storage, usage, and disposal. In accordance with guidelines set by the Japan Chemical Industry Association (JCIA), the Company is voluntarily implementing PRTR and reporting to the JCIA and the Japan Responsible Care Council. The Company handles and releases six of the 12 adverse air pollutants* on which JCIA has placed a priority on reducing emissions. Emissions of these substances by the Company are shown in the graphs below, which show emissions by plant. The Company significantly exceeded its target for 1999 of reducing emissions by 30% from the 1996 level, lowering emissions to less than 10% of the 1996 level, and 27% of the 1998 level.

*Twelve adverse air pollutants selected and voluntarily controlled by the JCIA for which reduction is a priority due to health risks and their status as adverse air pollutants

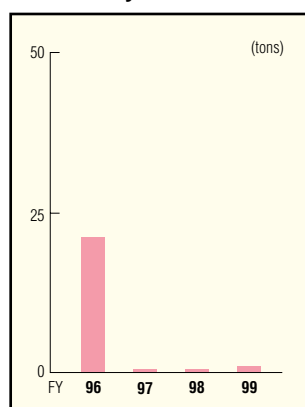
Total Emissions of 12 Chemical Substances



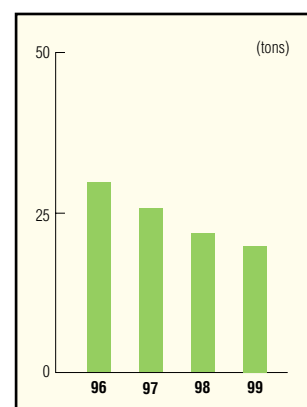
Dichloromethane



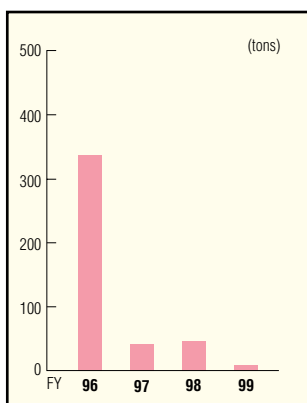
Formaldehyde



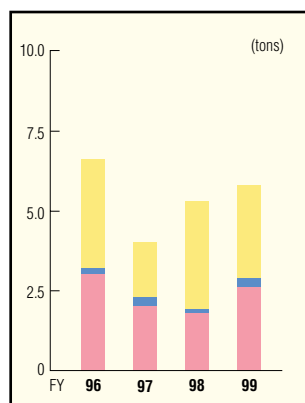
Benzene



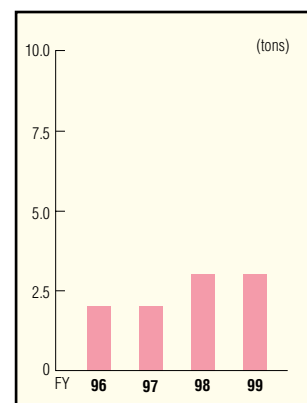
Acetaldehyde



Chloroform



Ethylene Oxide



- Hofu Plant
- Fuji Plant
- Sakai Plant
- Yokkaichi Plant
- Chiba Plant

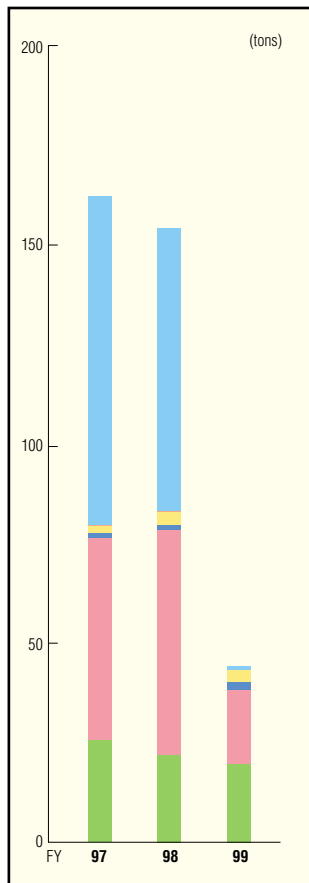
2) Emissions of PRTR/MSDS Law Class I Chemical Substances

The Company handles and releases 23 substances* covered by the Law on Improvement in the Management and Control of Emissions of Selected Substances (PRTR/MSDS Law). Total emissions for each plant, as well as emissions levels for the past three years of substances for which more than 100kg are released in one year are shown in the graphs below. In fiscal 1999, through improvements in exhaust gas treatment and the installation of organic solvent recovery equipment the Company made a significant reduction in its emissions of acetaldehyde and dichloromethane and reduced overall emissions to 38% of the fiscal 1998 level. Furthermore, the Company plans to significantly reduce emissions of benzene in fiscal 2000 through improvements in incineration equipment.

The Company releases more than 100kg per year of 13 of the 23 Class I chemical substances that it handles. Because 6 of the 13 substances are also adverse air pollutants selected by the JCIA, only the remaining 7 are in the graph below. The Company recycles all of the heavy metal catalysts included in the ten remaining substances.

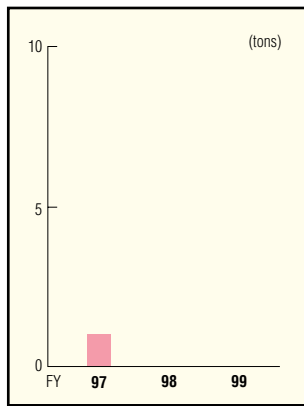
*Class I chemical substances as defined by the PRTR/MSDS Law are substances that may have an adverse effect on health and ecosystems in production, transport, or use. The Company does not handle PRTR/MSDS Class II substances.

Total Emissions of Class I Chemical Substances

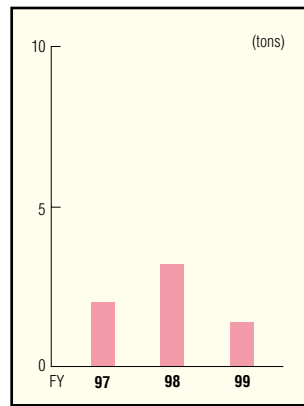


- Hofu Plant
- Ube Plant
- Fuji Plant
- Sakai Plant
- Yokkaichi Plant
- Chiba Plant

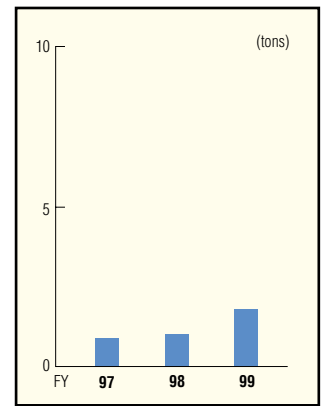
Maleic Anhydride



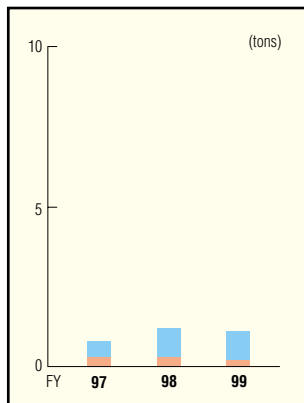
Phthalic Anhydride



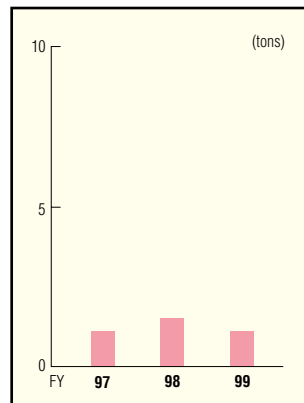
Toluene



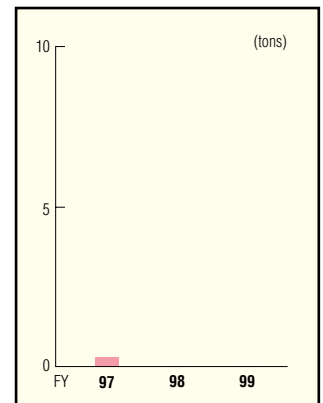
Xylene



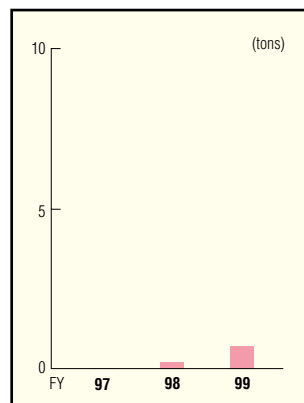
Dibutyl Phthalate



Diocetyl Phthalate



N, N-Dimethylformamide

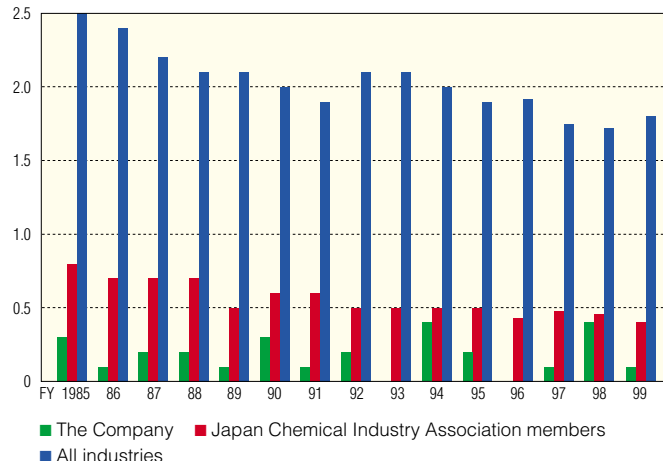


Preservation of Safety and Health

The Company implements thorough safety policies and works to maintain health and safety using safety technologies that it has developed over years of operations. The Company aims to realize an effective balance between such top-down measures as safety monitoring evaluation systems and safety assessment systems for new businesses and facility improvement plans and such bottom-up measures as zero accident activities as well as facility improvement proposals and the KY (risk assessment) system.

As shown in the graph to the right, the Company's occupational injury frequency rate ranks among the best in the chemical industry. The table below lists some of the major safety and health awards that the Company has received over the past five years. In fiscal 1999, the Yokkaichi Plant won the Ministry of Labor Award for achieving a level five safety record (18.0 million man-hours of accident-free operations) and in fiscal 2000 received the Minister of Labor Award for Safety. The Fuji and Ube plants have received awards for attaining level one (6.2 million man-hours) and level two (9.3 million man-hours) safety records, respectively, and are now building on these achievements. Also, both the Ube and Fuji plants have received the Fire Defense Agency Commissioner's Award as an excellent business facility handling hazardous materials. The Kyowa Hakko Group will strive to further improve their safety management.

● Yearly Changes in the Occupational Injury Frequency Rate



The occupational injury frequency rate is the number of injuries from disasters and accidents per one million man-hours.

Principal Health and Safety Awards Received Since 1995

Fiscal year	Name of award	Plant receiving award
1995	Ministry of Labor Award, level one (6.2 million man-hours accident-free safety record)	Ube Plant
	Minister of International Trade and Industry Award (Excellent manufacturing facility for high-pressure gas)	Ube Plant
1998	Minister of Labor Award (Safety)	Ube Plant
	Minister of International Trade and Industry Award (Excellent manufacturing facility for high-pressure gas)	Yokkaichi Plant
	Japan Chemical Industry Association Safety Award	Yokkaichi Plant
1999	Ministry of Labor Award, level two (9.3 million man-hours accident-free safety record)	Ube Plant
	Ministry of Labor Award, level five (18.0 million man-hours accident-free safety record)	Yokkaichi Plant
	Ministry of Labor Award, level one (6.2 million man-hours accident-free safety record)	Fuji Plant
	Fire Defense Agency Commissioner's Award (Excellent business facility handling hazardous materials)	Ube Plant
2000	Fire Defense Agency Commissioner's Award (Excellent business facility handling hazardous materials)	Fuji Plant
	Minister of Labor Award (Safety)	Yokkaichi Plant

Development of Technologies and Products That Preserve the Environment

The Company has used its expertise in the field of life sciences to develop a diverse range of environmental technologies and products. As part of efforts to promote the development of technologies and products that will contribute to the quality of the environment, the Company has set up the R&D Committee for Environment-Friendly Technologies and Products within its Research Division.

In addition, the Company is aggressively developing environmental technology transfers for organic waste recovery and recycling and the denitrification and dephosphorization of wastewater.

Principal Achievements

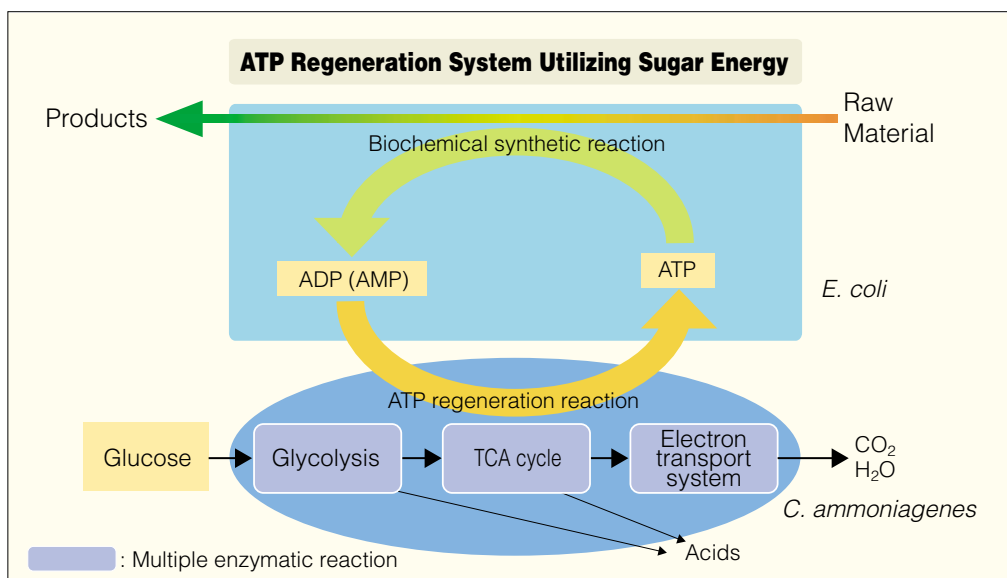
- 1964 Began selling organic fertilizer produced from recycled fermentation mother liquor
- 1970 Began manufacturing amino acid additives for stock feed and using an oxo process to recover CO₂
- 1970 Developed and commercialized an environment-friendly water-soluble polymer
- 1981-1986 Participated in a MITI-sponsored national research project on converting unused biomass to fuel oil
- 1993 Developed and commercialized polyurethane landfill liner sheet for final waste disposal sites
- 1993 Developed and commercialized cleaner and new raw lubricant for refrigerant used as CFC substitute
- 1996 Developed and commercialized phytase, an enzyme used in feed additives to prevent environmental damage caused by the livestock industry
- 1997 Commercialized a new manufacturing method for hydroxyproline, an amino acid that uses no collagen and causes little environmental damage
- 1997 Simplified and reduced the amount of packaging used for pharmaceuticals and foods
- 1998 Through joint research with Tsuji Oil Co., Ltd., developed and commercialized a process that converts *shochu* distillate into animal feed
- 1999 The Japan Scientific Feeds Association presented Kyowa Hakko with the Technology Award in recognition of the Company's efforts, through its business activities in amino acids and enzymes for feed additives, to promote the development and wide usage of feeds that reduce environmental impact.
Conversion to a simplified method for recycling PET bottles for *shochu* products

1. GREEN CHEMISTRY

Green chemistry is a revolutionary field of technology that is expected to make a significant contribution to the environment throughout the world. It focuses on safety and environment-friendly technologies as well as the utilization of recyclable raw materials to avoid the occurrence of problems that conventionally plague the chemical industry. The Company's fermentation

technology, which is controlled by reactions that take place in bioorganisms under normal temperature and pressure conditions, is a sterling example of green chemistry. The Company has already applied adenosine triphosphate (ATP) regenerative enzymatic reactions to develop manufacturing methods for pharmaceuticals and other products that are capable of safe

reactions under normal temperature and pressure conditions.

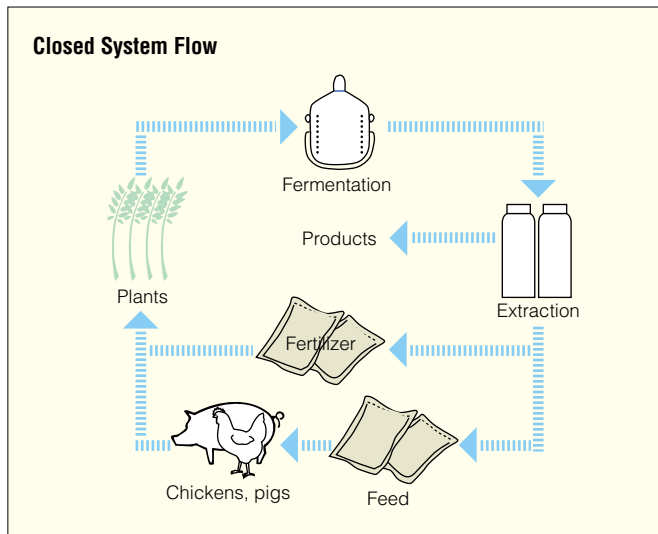


2. CARBON DIOXIDE RECOVERY USING OXO PROCESSES

Kyowa Yuka's Yokkaichi and Chiba plants have used oxo processes to recover CO₂ for use in oxo alcohol manufacturing processes since the 1970s. Plasticizers and solvents are manufactured using recovered CO₂ gas. The volume of CO₂ recovered in fiscal 1999 was 80,000 tons.

3. MEASURES TO REDUCE INDUSTRIAL WASTE

For many years, Kyowa Hakko has striven to realize the effective use of fermentation mother liquor—the main waste product of fermentation processes—in feed and fertilizer manufacturing. Kyowa Hakko has recorded a steady improvement in results using such technologies, which today are among the most essential found in the international fermentation industry. In 1977, Kyowa Hakko received the first Director General of the Environment Agency Award for implementing closed systems for process waste material and contributing to an improvement in water quality in bodies of water near its Hofu Plant. Measures to lessen the odor of fertilizers produced using raw material recycling processes as well as energy conservation have long been research tasks at Kyowa Hakko. In fiscal 1999, the Company finally achieved this goal by developing a new method of manufacturing an organic compound fertilizer that conserves energy and is environmentally protective.



4. REDUCTION OF LIVESTOCK EXCREMENT

Modern livestock breeding techniques result in nitrogen and phosphorus emissions as well as the generation of organic substances, a problem that has become a major global environmental issue. One of the main causes is a lack of certain nutrients in livestock feeds. Since the 1970s, lysine and other amino acids developed and supplied by Kyowa Hakko have been increasingly adopted in animal feeds to counter this problem by raising the rate of nitrogen utilization. Moreover, in 1996 Kyowa Hakko began supplying feed additives containing phytase, an enzyme that promotes the digestion of phytin in feed, thereby controlling phosphorus emissions. These technologies contribute to improved digestive efficiency and a reduction in the organic and eutrophic impact of the livestock industry.



Safety Management of Chemical Substances

1. CONFIRMATION OF PRODUCT SAFETY

Safety evaluations of chemical substances are becoming commonplace around the world. In addition to conducting independent product evaluations, the Company cooperates with the Japan Plasticizer Industry Association (JPIA) to confirm the safety of its products.

In 1995, the Company set up a project team to research endocrine disruptors, which have become the subject of many environmental studies. Also, the Company is participating in related activities sponsored by the JCIA and JPIA as well as exchanging information with these organizations. Furthermore, in 1996 the Company began measuring the in-vitro estrogenic activity of its all chemical products to confirm that such activities remain below acceptable levels. Based on these results, the Company has prepared Q&A-style guides and holds explanatory meetings to inform users of the highly unlikely effects of endocrine disruptors.

Elsewhere, the Company engaged the U.K.-based contract research organization Huntingdon Life Sciences to perform tests on one of its mainstay products, diisononyl phthalate (DINP) plasticizer. The results of these tests are now being used in safety evaluations in the United States and Europe.

Currently, the Company, as a member of the JCIA, is participating in the International Council of Chemical Associations' global initiative on high production volume chemicals to contribute to chemical safety management through international collaboration.

The results of risk assessments of phthalates can be viewed at the JPIA's home page, at <http://www.kasozai.gr.jp/index.htm>.

2. PREPARATION AND PRESENTATION OF PRODUCT SAFETY INFORMATION

Hitherto, the Company has prepared Material Safety Data Sheets (MSDSs) and supplied them to users. In response to the implementation of the PRTR/MSDS Law, the Company has introduced internal regulations concerning the supply of safety information to users of chemical substances and worked to increase the safety knowledge of employees at all work sites. The Company constantly aims to improve the quantity and quality of the safety information it supplies. The Company handles 23 of the substances listed as Class I chemical substances in the PRTR/MSDS Law. The emissions volumes for a number of these substances are included in this report.

3. DISTRIBUTION SAFETY

The Company has established a 24-hour-a-day emergency response system for maintaining distribution safety. In addition, the Company has adopted the yellow card system (a chemicals safety information card system) promoted by the JCIA and is providing education to those involved in the transportation of chemical products. Also, the Company is introducing new transportation vehicles as part of a model shift in its transport system to an energy-saving system for the improvement of safety management of general-use chemicals and the reduction of environmental impact during transport.

4. EVALUATION SYSTEM FOR R&D AND NEW BUSINESSES

The Company conducts safety and environmental assessments (SEAs) before commencing new businesses or undertaking major manufacturing facility upgrades to determine the safety and environmental impact of such plans. A similar assessment is made for product safety and is described in the next section of this report.

The SEA system is a crucial factor in the business commercialization process. Determining the usefulness of products and services and the impact on the environment that such products and services will have is the main objective of SEAs. The assessments encompass the entire product/services life cycle, from raw materials procurement and manufacturing through usage and final waste disposal.

Bio-Assessments

To ensure the safety of manufacturing processes that employ recombinant DNA technology, the Company has adopted stringent management standards that strengthen the guidelines provided by government bodies.

Chemical Assessments

The Company has established detailed prior assessment systems for volatile reactions. In addition, the Company carefully tests the biodegradability and toxicity of new chemical substances to develop usage and waste disposal processes that will minimize environmental impact.

Product Safety

In line with Company Management Guidelines, in order to offer goods that deliver customer satisfaction, the Company has created a quality assurance system and is making improvements in product development, manufacturing, and supply. From the management's perspective, product safety is considered the most important aspect of product management and is fundamental to quality assurance. To ensure and make further improvements in product quality and safety, we have implemented optimum quality systems at each plant. To raise operations to a higher level of efficiency, the Company has implemented production management and quality management systems, including Good Manufacturing Practices (GMP) in the production of pharmaceuticals (Fuji, Ube, Hofu, Sakai, and Yokkaichi plants), HACCP for food and beverage production (Tsuchiura, Moji, and Hofu plants), as well as ISO 9002 general standards, for which five plants (Chiba, Yokkaichi, Hofu, Ube, and Moji plants) have been certified.

Following the steps and systems dictated by law, the Company conducts strict safety and efficacy checks in the development of pharmaceuticals. Looking at products in other categories, to ensure safety when new products are developed as well as when processes or materials are changed, the Company employs such strict, independent change management systems as the Quality Assessment Management (QASM) system and, when necessary, conducts toxicological studies using animals to test and evaluate the safety of its products to guarantee the safety of end users. Further, the Company complies with Material Safety Data Sheets (MSDS) regulations and provides the information necessary for the safe use of pharmaceuticals by both doctors and patients.

Increasing Environmental Awareness

1. KYOWA ECO-PROJECT

To reduce the Company's impact on the environment, the head office is working with production facilities on the Kyowa Eco-Project to set concrete goals, for example, saving energy and reducing waste.

2. GREEN OFFICE PLAN

The Company has promoted environmental management to enhance employees' environmental consciousness through guidelines for power conservation, the procurement of recycled products, and waste recovery.

3. GREEN PROCUREMENT

The Company's environmental activities are carried out throughout the life cycle of its products, including raw materials procurement.

The Company conducted a survey of its 100 major suppliers concerning their environmental activities with the aim of working together with these companies on environmental activities. The survey dealt with the following items to ensure its suppliers are in harmony with the Company's environmental activities.

- Corporate philosophy in regard to environmental protection and the establishment of policies
- Implementation of environmental protection framework
- ISO 14001 certification
- Compliance with environmental laws
- Concern about business-related environmental impact



Communication with Local Communities

The Company has worked to disclose information to the public through the publication of *Health, Safety, and the Environment*, which is offered on request to public organizations, including related government offices, local government bodies, prefectural and municipal environmental pollution control councils, and other organizations. Furthermore, the Company welcomes people from China, ASEAN, and South America to participate in cooperative environment-related training. Moreover, the Company constantly works to deepen its ties with local communities through involvement in local government-sponsored activities, including joint accident-prevention training, as well as through discussions with stakeholders and inviting local people to participate in plant events.

Principal Community Contributions and Activities for Safety and the Environment

- Yamaguchi Prefecture—global environmental preservation activities under a friendship agreement with Shangdong Province, China (plant wastewater treatment technology training)
- Partnership with Kita Kyushu International Techno-cooperative Association in sponsoring an environmental workshop held by the Japan International Cooperation Agency (JICA).....Photo 1
- Partnership in the International Center for Environmental Technology Transfers
- Pollution control liaison meetings with local governments
- Participation in meetings with local communities
- Participation in accident-prevention training for all citizens (Petroleum Combinat Division).....Photo 2
- Participation in neighborhood accident-prevention training
- Participation in zero trash activities
- Participation in Love Hofu activities
- Plant-sponsored Summer Evening Festival.....Photo 3
- Donations to nature conservation concerns (Keidanren Natural Conservation Fund, WWF Japan)



Photo 1



Photo 2



Photo 3

Management Guidelines for Safety and the Environment

“Work to protect the environment and maintain safety and also provide products with consideration of the environment and safety.”

Declaration of the Basic Policies for Health, Safety, the Environment, and Product Safety

We declare that, in accordance with the “Basic Policies for Health, Safety, the Environment, and Product Safety,” we will carry out Responsible Care (RC)* activities extensively to preserve health, safety, and the environment as well as step up quality assurance to ensure the safety of consumers in our daily business activities.

*Responsible Care (RC) is a set of self-management principles according to which business operators engaged in the manufacture or handling of chemical substances make a commitment to follow stringent management guidelines. These guidelines are aimed at preserving the environment and ensuring safety at all stages of chemical substance life cycles, from development and manufacturing to distribution, use final consumption, and disposal. RC also calls for the implementation of measures to make improvements in areas related to health, safety, and the environment based on the principle of individual responsibility.



BASIC POLICIES ON HEALTH, SAFETY, THE ENVIRONMENT, AND PRODUCT SAFETY

Kyowa Hakko's policy formulated at its establishment is to “contribute to the health and well-being of people worldwide by creating new value with the pursuit of advancements of life science and technology.” Based on this policy, we will exert ourselves to realize an affluent society by conducting business activities with scientific consideration for health, safety, the environment, and product safety throughout the whole life cycle of our products, from research and development through production, marketing, use, and disposal, as well as by making efforts to ensure the quality and safety of our products, taking the safety of consumers as a matter of the greatest importance.

GUIDELINES FOR ACTION

As our first rule, we should strictly control ourselves with profound respect for all living things and with modesty toward science, prove ourselves worthy of public confidence, and contribute to the growth of a healthy and affluent society. Therefore, we should advance our business activities under the following principles, with the protection of human beings and the environment, as well as the safety of consumers, as our first consideration.

- 1) Along with the establishment of the basic policies and control systems for health, safety, the environment, and product safety as our highest principles in the management of Kyowa Hakko, we strive to enhance our employees' consciousness of health, safety, the environment, and product safety by making these principles generally known to them and to advance our activities under these principles from a global standpoint.
- 2) We observe international regulations, as well as domestic laws, rules, regulations, and agreements relevant to health, safety, the environment, and product safety, in cooperation with relevant foreign and domestic agencies and organizations and make efforts to raise our level of control over these principles by observing our self-imposed control standards and utilizing auditing systems.
- 3) Together with our efforts to ensure the safety of our business activities and to reduce negative impact on the environment, we strive to ensure the quality of health, safety, the environment, and product safety throughout the whole life cycle of our products by engaging in overseeing the purchase of raw materials; the production, transportation, and sale of products; and the use and disposal of products by our consumers.
- 4) We carry out assessments of health, safety, the environment, and product safety prior to the development of new technologies and products, the transfer of technologies, and the start of novel businesses. These assessments enable us to ensure our products meet the highest standards with respect to such technologies throughout the whole life cycle of such products commencing in the planning stage.
- 5) We contribute to health, safety, the environment, and product safety on a global scale by working actively toward the development of “earth-friendly” technologies and products as well as toward the development of energy-conservation and resource-conservation technologies.
- 6) We concentrate our efforts on research and development to keep abreast of scientific progress, and we strive to strictly assure the usefulness and safety of our products.

(Introduced on January 29, 1996)

Organization of Safety and Environmental Furtherance

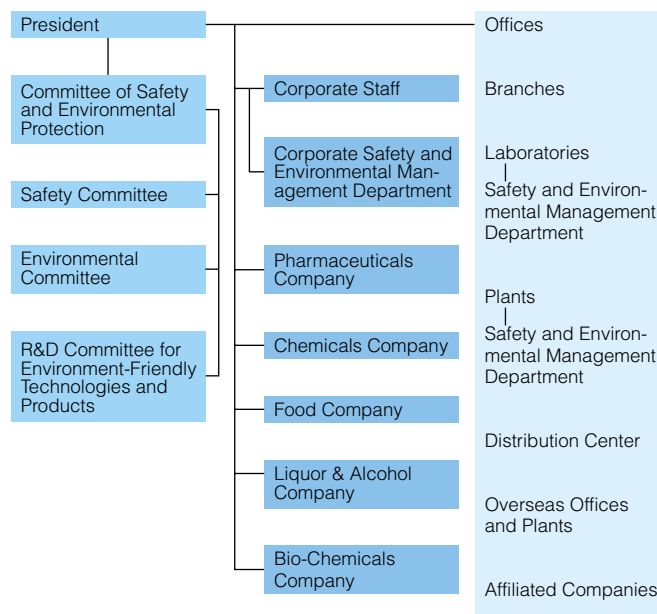
1. MANAGEMENT ORGANIZATION

Kyowa Hakko has established the Committee of Safety and Environmental Protection to formulate basic policies related to health, safety, and the environment.

Organizations operating under this structure include the Safety Committee and Environmental Committee—which ascertain the state of health, safety, and environmental management as well as issue improvement directives—and the R&D Committee for Environment-Friendly Technologies and Products, based at the Research Division, which formulates development plans for technologies and creates products that protect the environment.

The Corporate Safety and Environmental Management Department at Kyowa Hakko’s headquarters is the organization responsible for handling business affairs related to safety and the environment as well as for coordinating the safety and environmental management organization at the various workplaces (plants, R&D facilities, and sales offices) of the Company.

Safety and Environmental Management Organization



2. EMERGENCY MEASURES

The Company has prepared a manual outlining such details as lines of communication and appropriate responses in the event of accident or disaster. Further, we have established disaster-response headquarters to devise detailed responses in the event of such large-scale disasters as earthquakes or volcanic eruptions. All of the Company’s business sites prepare for emergency situations through disaster training.

3. SAFETY AND ENVIRONMENTAL AUDITING

Once every year, the Company’s domestic business sites, including its eight plants, research laboratory, and sales offices, undergo safety and environmental audits. Each audit is conducted by several in-house auditors as well as a representative from the labor union, who issue a report of the audit for top management. Further, the Company conducts audits of its subsidiaries and holds discussions and Kyowa Hakko Group meetings with the Safety Committee and the Environmental Committee to enhance safety and environmental quality as defined by corporate policies.

For further information, please contact:

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