



Environment, Safety and Health Report 2001

– Kao's Responsible Care –



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Company Outline (as of March 31, 2001)

Corporate Name: Kao Corporation

Address: 14-10, Kayabacho 1-chome, Nihonbashi, Chuo-ku, Tokyo 103-8210 Japan

Consumer Information Center: 1-3, Bunka 2-chome, Sumida-ku, Tokyo 131-8501 Japan Tel: +81-3-5630-9911

URL : http://www.kao.co.jp/e/corp_e/

Foundation: June 1887, Tokyo, Japan

Registration: May 1940, Tokyo, Japan

Capital: ¥85.4 billion

Number of Employees: 5,747

Description of Business: Manufacture and sale of consumer products, cosmetics, and chemical products. The major products are listed below:

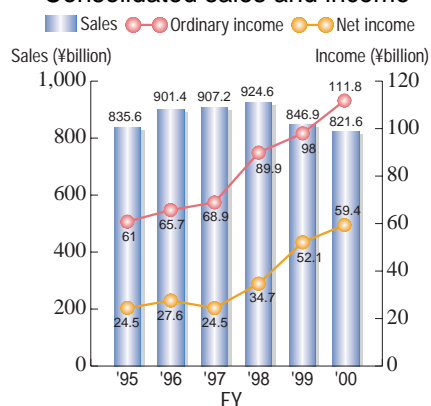
- **Consumer products**
 - Personal care products: soap, body care products, shampoo/conditioner, hair color
 - Laundry and cleaning products: laundry detergents, fabric softeners, dishwashing detergents, household cleaning detergents
 - Hygiene products: sanitary napkins, disposable diapers, incontinence products
 - Food products: healthy cooking oils, cooking oils, dressing, packaged cake mixes
- **Cosmetics**
 - Facial cleansers, facial care, special care, makeup
- **Fatty chemicals and specialty chemicals**
 - Fatty acids, fatty alcohols, fatty amines, concrete additives, deinking agents

Kao operations in Japan

Kayabacho Head office in Chuo-ku, Tokyo; Osaka Branch in Nishi-ku, Osaka-shi, Osaka
Wakayama Plant and Wakayama Research Laboratories in Wakayama-shi, Wakayama
Sumida Office, Tokyo Plant, and Tokyo Research Laboratories in Sumida-ku, Tokyo
Sakata Plant in Sakata-shi, Yamagata; Kawasaki Plant in Kawasaki-shi, Kanagawa
Tochigi Plant and Tochigi Research Laboratories in Haga-gun, Tochigi
Kashima Plant in Kashima-gun, Ibaraki; Toyohashi Plant in Toyohashi-shi, Aichi
Ehime Sanitary Products in Saijo-shi, Ehime

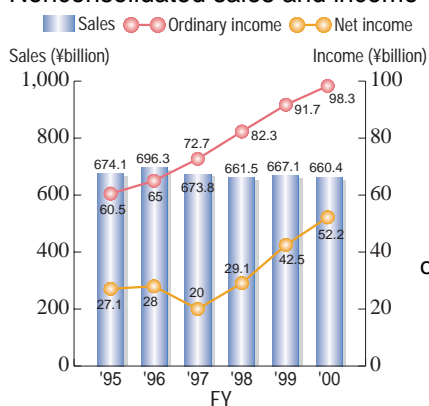
Sales and Income

Consolidated sales and income

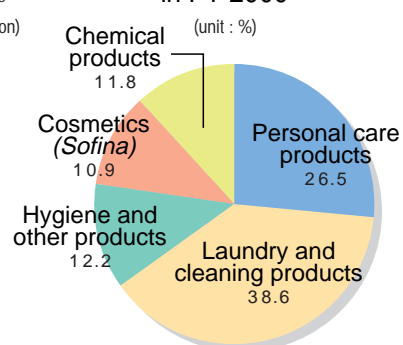


(63 subsidiaries consolidated, 20 companies applied equity methods)

Nonconsolidated sales and income



Share of nonconsolidated sales in FY 2000



Period and area covered by this report

- Year covered: Fiscal 2000 (from April 1, 2000 to March 31, 2001)
- Plants covered: Domestic business establishment listed in the Kao Company Outline
- Activities covered: Contents of environmental, safety and health, and disaster prevention activities, which are related to business operations listed in the Kao Company Outline
- Date of publication: September 2001 (Next edition will be published in July 2002.)
- Publishing department: Environment and Safety Division, Kao Corporation
- Inquiries: Details on the back cover

Foreword

When I was a child, I used to catch fresh-water trout and rock carp in the stream near my house, and in the summer, my friends and I used to swim in the sea all day until it got dark. But recently it has become very rare to see children having fun in this way. At times, when I gaze down at oceans and rivers, and forests and fields from an aircraft, I keenly feel just how precious the earth we live in is. Reflections such as these force us to consider the environmental problems we are now facing. It can be said that the main cause of these problems is that, in our pursuit of a better life, we have consumed excessive amounts of natural resources and energy.

With the markets our company supplies maturing and reaching a point of saturation, consumers' values are becoming diverse, and behavior patterns and lifestyles also change. Our most important mission as manufacturers is to make superior products to match this diversity and meet changing needs. On the other hand, another mission is to provide consumers with products exerting less of an impact on the environment and to utilize production methods that place a minimum burden on the environment. Achieving compatibility of a high level of environmental protection with carrying on a business is a key task we have been assigned.

When making products we, of course, not only observe international regulations regarding the environment, we also make positive efforts of our own and strive to minimize damage to the environment. When it comes to what happens after our products have been used, the company is increasing its efforts to lessen burdens on the environment by promoting recycling and reducing the use of material that has to be disposed of as waste. These activities reflect the company's position that environmental protection is an extremely important management task. This includes creating higher added value with less utilization of resources.

As the person responsible for Kao's management, I want our company to contribute to the building of a sustainable social system so that following generations may enjoy the blessings of the natural environment. Kao hopes that this report will enable you to understand its attitude and activities regarding environmental protection.

September 2001



Takuya Goto

Takuya Goto
President

Kao's Measures for the Environment

One can say that Kao's environmental protection measures have been developed almost in tandem with the development of the company's laundry detergents. Kao began addressing these issues in the 1960s when foam caused by synthetic detergents was found in rivers and eutrophication caused by phosphorus occurred in closed bodies of water. Also at about that time, the company began serious efforts to develop countermeasures against pollution, including treatment of exhaust gasses and wastewater from production plants to prevent air and water pollution. As we entered the 1980s, we had succeeded in manufacturing concentrated detergent. This resulted in smaller packages, which enabled us to reduce energy consumed in production and transportation. This was a great improvement from the viewpoint of conserving resources and saving energy. In the 1990s, Kao developed and popularized refill products and replacement bottles for its liquid detergents — another move that contributed to saving resources and reducing waste.

Kao Corporation always keeps in mind that it is a supplier of daily necessities and has tried in each stage of the business process — from development, production, and distribution, to consumption and disposal — to make environmentally-conscious products that place the smallest possible burden on the environment.

The company has built environmental management systems for each of its units. By the end of the previous fiscal year, all of Kao's plants in Japan had obtained ISO14001 certification. Part of this effort has been the setting of annual "environmental goals" in the form of concrete numerical targets established to clarify the purposes of our environmental protection activities. These targets were met in the previous fiscal year.

Our main environmental protection activities in the past two to three years have been to further strengthen waste reduction and saving of resources and energy in production processes. The company has also made every effort to minimize the use of packaging materials to reduce waste created after products have been consumed. Kao is also aware of the absolute necessity of partnerships for environmental protection with the government and especially with the consumers who use our products. It is from this standpoint that the company issues publications and utilizes the Kao Website to make the environmental information provided to consumers as effective as possible.

As the company continues the steady efforts outlined above, it will study new approaches as well. These include such activities as Life Cycle Assessments (LCA) and Green Purchasing. We hope that this Environment, Safety and Health Report will contribute to a deeper understanding of the environmental protection activities undertaken by Kao Corporation. The company welcomes your frank opinions or advice.

September 2001



A handwritten signature in black ink that reads "Yasuo Idemitsu". The signature is fluid and cursive, with the first name "Yasuo" and last name "Idemitsu" clearly distinguishable.

Yasuo Idemitsu
Managing Director

History of Environmental Safety Activities

In 1990, the Committee for Pollution and Safety Control was renamed the Environment and Safety Division, and the company's independent environment and safety activities were initiated.

In 1995, the company participated in the Japan Responsible Care Council to promote our activities, and we have been actively providing information to society.

In 1999, in order to make our stance concerning responsibility more clear, we established the Product Safety Division.

Currently, the Environment and Safety Division is responsible for environmental preservation, occupational health and safety as well as production process safety and disaster prevention, while the Product Safety Division oversees the safety of chemical substances, product safety, and product liability.

	External Developments	Internal Developments
1990		• Committee for Pollution and Safety Control becomes the Environment and Safety Division
1991	• Establish Basic Environment Law	• Release refill products
1992	• Hold United Nations Conference on Environment and Development (UNCED)	• Publish Kao's Business Activities and the Global Environment
1993		
1994		• Publish Kao's Environmental Measures
1995	• Establish Japan Responsible Care Council • Establish Container and Packaging Recycling Law	• Participate in the Japan Responsible Care Council • Announce Philosophy and Policies regarding the Environment, Safety and Health • Publish Kao's Products and the Environment • Launch Kao Website on the internet
1996		• Establish various responsible care related rules and regulations • Issue Environmental and Safety Daily Life Information
1997	• Convention on Climate Change (COP3) in Kyoto	
1998		• Publish Kao's Responsible Care (first edition)
1999	• Establish Law Concerning Special Measures against Dioxins • Establish PRTR (Pollutant Release and Transfer Register) Law	• Establish Product Safety Division due to reorganization of corporate structure
2000	• Complete enforcement of Container and Packaging Recycling Law • Establish Basic Law for Establishing the Recycling-based Society • COP6 (Convention on Climate Change 6)	• Environment and Safety Activities incorporated into TCR activities • Announce environmental accounting • Wakayama Plant certified by a security inspector as a designated high-pressure gas facility
2001	• Environment Agency becomes the Ministry of the Environment	• Start labeling compliant with the Container and Packaging Recycling Law • Complete attainment of ISO 14001 certification for all plants in Japan • Begin indicating all ingredients in correlation with the Pharmaceutical Affairs Law revisions • Launch waste reduction project

Overview of Fiscal 2000 Environmental and Safety Activities

1) Environment

The attainment of ISO 14001 certification for every plant in fiscal 2000 signifies that the full-fledged environmental management system for the 21st century has been established. On the other hand, to directly confront environmental issues from different viewpoints, the company added environmental preservation activities to the TCR (Total Creative Revolution) activities for the company's operational innovation. The major targets of these activities are the conservation of resources and energy, and the reduction of waste. The company has taken the approach of not assuming that all that can be done has been done, but rather we have dramatically changed our perspective from a conventional method to a new approach in which we try again. In addition, our efforts have focused particularly on Reduce, one of the 3 Rs (Reduce, Reuse, Recycle), and reduction projects for resources and energy have begun at each work site. As for waste reduction, we are trying to achieve our "zero waste" goal to eliminate landfill refuse.

Specifics in energy conservation will be presented later, but, in the past several years, the unit value added index of consumption for energy and CO₂ emissions continually decreased, while the absolute value increased. In fiscal 2000, we were able to decrease even the absolute value by changing the fuel at co-generation facilities from heavy oil

Term

(1) Responsible Care : Responsible Care is generally defined as the "Independent management activities of companies which manufacture or handle chemical substances, that, under the general rules of self-determination and responsibility, aim to preserve the environment, provide safety and health and that incorporate a commitment to the public in their management policy to provide and improve environmental protection, safety and health over the entire life cycle of chemical products, including the development, manufacture, distribution, use, final consumption and disposal of chemical products." Responsible Care in Japan was set up by the Japan Chemical Industry Association and, as a result, the Japan Responsible Care Council was established in 1995. Kao has been an active member of the organization since its establishment and, as of October 2000, it consisted of 111 company members.

to liquefied natural gas (LNG), improving energy efficiency and promoting the reallocation of facilities (see page 27 for details).

We have already achieved our current goal to reduce the amount of energy used and volume of waste. Therefore, we have set a new level higher than the present goal, and have added reduction of CO₂ emissions, previously unmentioned in the objectives, to the objectives (see page 28 for details).

2) Occupational Safety and Health

In fiscal 2000, there were two incidents resulting in leave in the Production & Engineering Division. This amounts to a frequency rate of 0.22. The rate for the overall chemical industry figured by the Ministry of Health, Labour and Welfare is 0.92.

We focused on improvements in operation by our logistics companies, which previously had many labor accidents, and introduced risk assessment related to machinery in 1998. Company representatives traveled to logistics centers throughout the country regularly to reduce accidents resulting in leave to 8 and the rate of accidents to 1.33 this fiscal year, following education and efforts to spread measures throughout the logistics companies. (The rate for the general freight automobile transport industry is 3.07.) In particular, accidents occurring as a result of becoming caught in the machinery due to machine contact declined to zero incidents.

Also, the company began introducing risk assessment in fiscal 2000 at production plants to prevent serious accidents when installing new facilities and moving facilities due to reallocation (see page 38 for details).

3) Disaster Prevention Activities

There have been no cases of fires or explosions in recent years. However, the possibility of the occurrence of a large earthquake and accompanying disasters always make us keenly aware of the size of risks. Therefore, the company not only focuses on risk assessment of disasters and disaster prevention training, but also participates actively in community disaster prevention training and thoroughly conveys details of action manuals for the event of disasters.

4) Management of Chemical Materials

For the standards for product safety, which are to comply with the law, the Kao Product and Material Safety Assessment Standards have been established to secure safety and as a guide for product development. The Standards are comprised of the approach to safety assessment, procedures and methods of safety assessment, and the List of Restricted Materials Used.

On the other hand, the company developed the master index (M. I.), a unique chemical substance identifying code that can specify chemical substances from individual materials to compounded final products. We have since built various systems based on this common code (see page 33 for details).

2001 is the year Japan initiated PRTR (pollutant release and transfer register). As for the substances subject to PRTR that the Japan Chemical Industry Association has designated, the company previously established the emissions amount of 1 ton or less per year as the target of each plant and has achieved this at almost all plants by fiscal 2000. The company also plans to reduce substances that have been newly added by the law to the same target level (see page 32 for details).

5) Communication

The company broadcasts environmental information both in Japan and overseas through the Kao Website, the Environment, Safety and Health Report in Japanese and English and other publications including Environment and Safe Daily Life Information. We also communicate widely and bi-directionally with diverse groups of people through cultural and artistic activity support, and environmental volunteer activities with a strong community flavor. These people include consumers, local residents, and stakeholders. We will continue our efforts to find the optimal form of communication.

Kao issued 7,000 Japanese language copies and 1,700 English language copies of the Environment, Safety and Health Report 2000.

Terms

(1) ISO 14001 : This is the abbreviation for the international standard on environmental management systems compiled by ISO (International Organization for Standardization). Of the 14000 series, ISO 14001 is the standard adopted by many companies. This standard particularly calls on "companies themselves to establish targets and continually work to lower environmental burdens that are caused by their business activities."

(2) 3 Rs : Reduce, Reuse and Recycle. Precisely, it means to reduce the amount of raw materials used and emissions, to reuse containers and their functional parts and recycle into raw materials

(3) Co-generation : This is a system that uses utility gas, which has a low CO₂ emission level, for power generation and effectively utilizes waste heat generated from power generation to heat residences and plants. This system improves heating efficiency to a large extent.

(4) PRTR : This is an abbreviation for Pollutant Release and Transfer Register. It is a system designed to acknowledge and reduce environmental risks by requiring companies to report to the government and publish potentially harmful chemical substances and environmental pollutants that are released and/or transferred by the companies.

Chapter 1

Environmental Management

1 Kao Management Principles

Kao Management Principles

Mission Statement

Kao's mission is to contribute to the wholehearted satisfaction and the enrichment of the lives of our customers and employees throughout the world. We will accomplish this by drawing on our creative and innovative strengths to develop products of excellent value and outstanding performance from the customer's point of view.

Fully committed to this mission, all employees of Kao Corporation are working together in close coordination to win the loyalty and the trust of their customers in the company's core fields of cleanliness, beauty and health, and in the core field of chemicals.

Basic Principles for Corporate Activities

1. Innovative Products
2. Profitable Growth
3. Management by "Select and Focus"
4. A Coordinated Corporate Effort
5. Responsibilities to Society

Action Guidelines for All Members

1. Challenge to Change
2. Interaction with Customers
3. Think Globally
4. Seek to Improve Your Professional Capabilities
5. Develop Interactive Communication

Kao Management Principles, which incorporates the company's core corporate activities, was established in 1995 and partially revised in 1999. It serves as the basis for all Kao's safety and environmental activities.

Kao Management Principles consists of the Mission Statement, Basic Principles for Corporate Activities, and Action Guidelines for All Members. In the fifth clause of the Basic Principles for Corporate Activities, Kao social responsibilities are outlined as follows:

Clause 5. Responsibilities to Society

We should keep in mind that we are members of the communities we operate in and that we have social responsibilities that must be met.

From this perspective, we must maintain a fair and open corporate position.

As concerned and involved corporate citizens, we will work to fulfill our responsibilities to society by making the most effective use of natural resources while caring for the environment.

Furthermore, the Corporate Ethics of Kao Corporation serve as the standards for the company's corporate activities pertaining to the environment, safety and health as follows:

Clause 2. Thorough Consideration of the Environment and Safety

- (1) We shall give thorough consideration to environmental preservation and human safety in all business processes including R&D, manufacture, distribution, consumption and waste disposal.
- (2) We shall develop and produce products with a minimum impact on the environment and in a manner that efficiently uses and recycles natural resources and energy wherever practicable.

2 Philosophy and Policies Regarding the Environment, Safety and Health

Kao's philosophy and policies regarding the environment, safety and health were established in 1999 to define the company's activities concerning the environment, safety and health activities while taking into consideration the spirit of Kao Management Principles and the Corporate Ethics of Kao Corporation. Aware of the differences between environmental activities and safety and health activities, Kao conducts activities in the frameworks of "Environmental Preservation," "Process Safety and Disaster Prevention," "Occupational Safety and Health" and "Product Stewardship," as outlined by the Japan Responsible Care Council. The second item in the policies has been partially revised. Until this year, reduction of disposal waste was included in the range of saving resources. However, as it is a significant issue for environmental measures, reduction of disposal waste is now specified separately.

Kao Management Principles, the Corporate Ethics of Kao Corporation

Philosophy Regarding the Environment, Safety and Health

Kao is committed to the environment, safety and health throughout the whole lifecycle of products, from product development, manufacturing and distribution to consumption and final disposal. At the same time, Kao contributes to the sustainable development and better lives of all people.

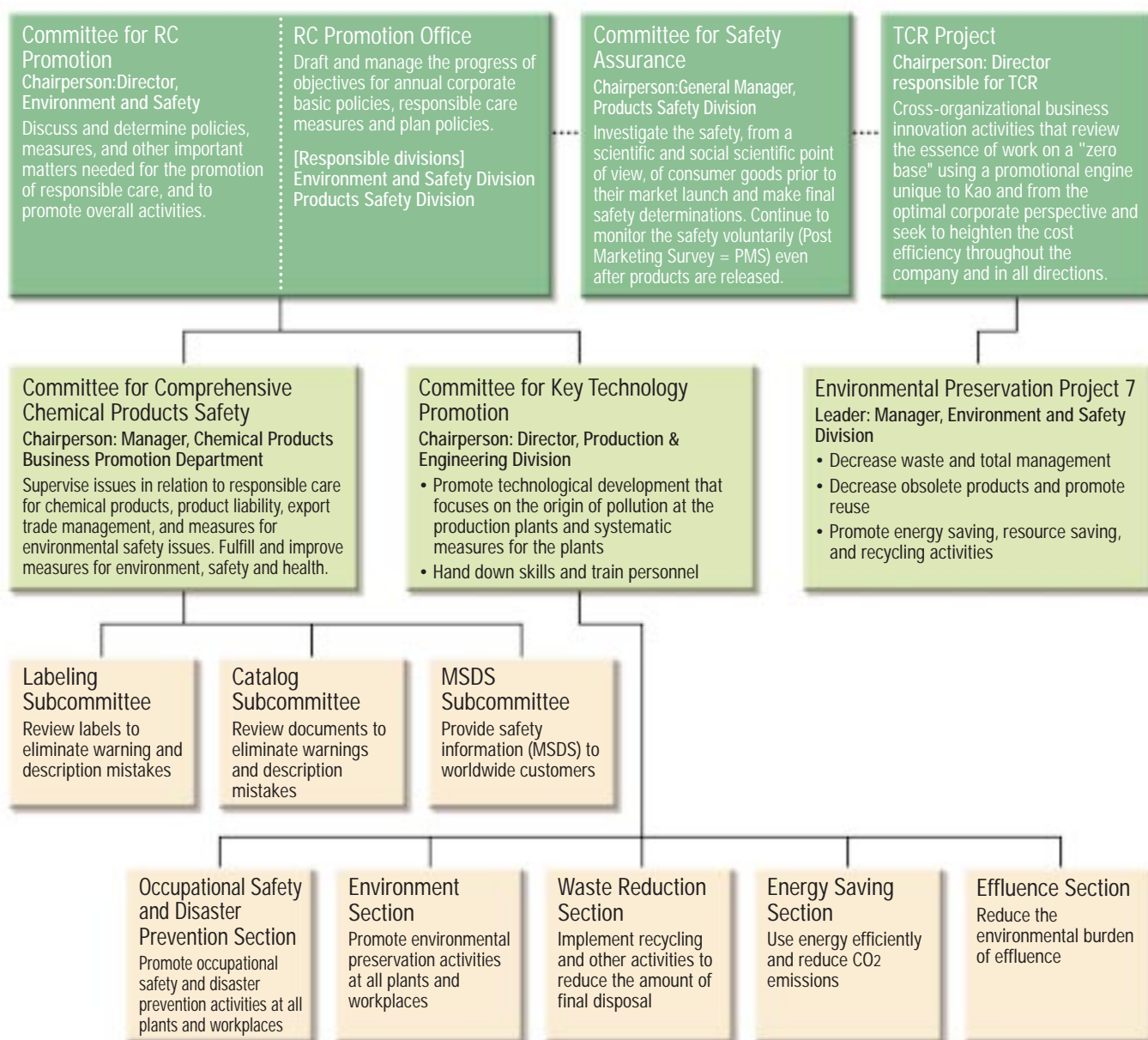
Policies Regarding the Environment, Safety and Health

1. Develop safe and environmentally-conscious products
2. Save resources and energy, reduction of disposal waste
3. Provide safety products with safety information
4. Ensure safety and care for the environment of communities
5. Maintain health and safety in the workplace
6. Comply with laws and regulations
7. Implement internal audits
8. Employees' awareness of Kao's responsibilities

3 Management System

(1) Organization and Framework

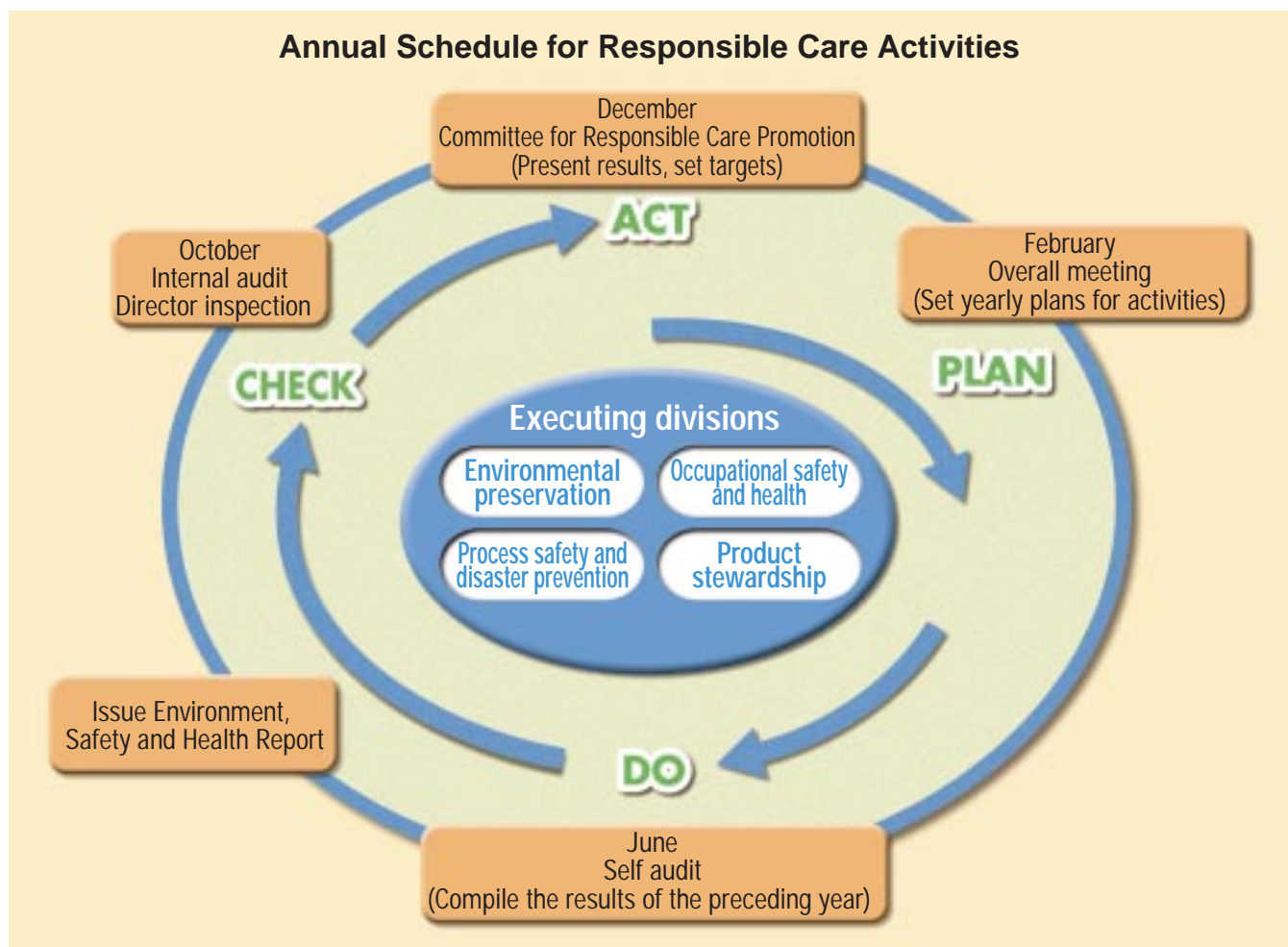
Fundamentally, each division, such as Research & Development Division, Production & Engineering Division, is responsible for the company's environmental and safety activities, but the "Committee for Responsible Care Promotion," "Committee for Safety Assurance," and "TCR Project" exist to oversee the entire corporation across divisions. Each organization promotes and checks specific activities in accordance with its mission and annual schedule.



(2) Operation

Responsible care activities are conducted according to a set annual schedule. At a “Plan” session held in February, each division presents its issues and targets for the coming fiscal year to gain the approval by top management. This is referred to as the “Plan” phase. The “Do” phase commences in April in conjunction with the start of the fiscal year. After activities have been conducted for a half-year, the Responsible Care Promotion Office carries out the “Check” phase around October by checking every plant and workplace. Then in the latter half of the fiscal year, each division corrects any problems specified.

The Responsible Care Promotion Office identifies the progress and issues of each division found in the October “Check” phase and summarizes corporate objectives. Management reviews these to make them the following fiscal year’s themes or objectives. This step is referred to as the “Act” phase. At the Committee for Responsible Care Promotion meeting held in December, the following year’s policies or targets are relayed to each division. Each division then develops promotion targets to be approved in February. The following is the annual schedule that targets this PDCA cycle to improve activities each and every year in a spiral-like manner.



4 Measures and Education Concerning International Standards (ISO)

Status of ISO attainment

(as of April 2001)

◆ ISO14001	(Date of attainment)
Kashima Plant	December 1998
Tochigi Plant/Research Laboratories	October 1999
Ehime Sanitary Products	December 1999
Wakayama Plant/Research Laboratories	February 2000
Sumida Complex/Tokyo Plant/ Research Laboratories	April 2000
Toyohashi Plant	December 2000
Kawasaki Plant	March 2001
Sakata Plan	April 2001

*All eight plants in Japan have ISO 14001 certification as of April 2001.

◆ ISO 9002
Wakayama Plant, Sakata Plant, Kawasaki Plant, Tochigi Plant, Kashima Plant, Ehime Sanitary Products

*The ISO 9002 certification process is conducted by each plant for each individual product.

The company is continuing with efforts for attaining certification for the ISO 14000 series, an international standard for environmental management systems, and the ISO 9000 series, an international standard for quality control systems.

The present status of ISO certification is as indicated in the table. All plants in Japan have achieved ISO 14001 certification as of April 2001. Our local affiliates overseas are also continuing in their efforts toward certification. The company is educating employees and staff of cooperating companies about the environment, safety and health in line with this ISO management system and responsible care activities.

The company through today has conducted responsible care activities, promoted ISO 14001 management in every plant, and educated each employee about activities for occupational safety and health. As a consequence, employee awareness and attitudes concerning the environment, safety and health have steadily risen.

The Production & Engineering Division has incorporated and practiced environmental and safety education in its curricula for Production Manager Training, the Kao Techno-School and Engineer-juku. 112 students received this education in fiscal 2000.

In addition, each workplace has been conducting education for auditors and other posts in their efforts to promote the ISO 14001 management system. 174 people in our company took these courses during fiscal 2000.

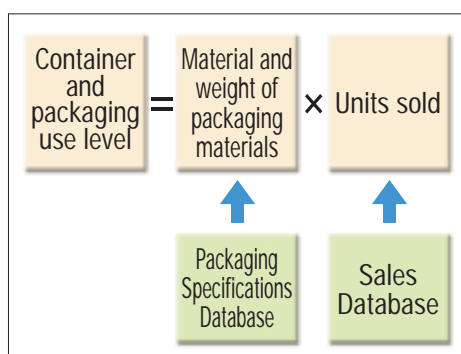
In addition to the above activities, approximately 210 consumers took courses concerning environmental measures at our Consumer Information Center. These courses are given using in-house materials, the Kao Environment, Safety and Health Report, the Environment and Safe Daily Life Information, the Environmental Measures in Daily Life video, the Intranet, and other materials.

5 Legal Compliance Measures

In Japan, the year 2000 was positioned as the year of the environment, and the May session of the Diet passed new environment related laws and revised existing environmental laws. The Container and Packaging Recycling Law went into full effect from April, and plastics and paper, which the company uses in large volumes for packaging, also became subject to this law.

The company has conducted activities to comply with these legal regulations. The following are the three measures that directly relate to the business.

Calculating the use level of packaging



(1) Measures concerning the Container and Packaging Recycling Law — Building a database on the amount of packaging materials used —

The Container and Packaging Recycling Law requires companies to recycle containers and packaging. Companies will pay outsourcing costs for recycling these based on their sales performance in the preceding year. In addition, this law makes the preparation of an account book showing such items as category, material, use amount, and sales volume compulsory. This account book is not only a record of recycling, but it is also proof that duties have been

fulfilled. The source for the account book is the Packaging Material Usage Database.

Since 1989, the company has placed specifications concerning packaging (form, material, dimensions, material properties, etc.) in a database, and over 1,000 “Packaging Specifications” are issued over the Intranet every year based on this database. This “Packaging Specifications Database” is linked with the sales volumes in the “Sales Database” to form the “Container and Packaging Material Usage Database.”

This has enabled the level of packaging materials used to be categorized by container, material, product category or other classification. This information has enabled the company to prepare an account book for the Container and Packaging Recycling Law and grasp the effects from reduction of packaging materials.

(2) Measures concerning the Law for Promotion of Effective Utilization of Resources

— Displaying identification marks —

The Container and Packaging Recycling Law stipulates the roles for customers, municipalities, and companies respectively to sorting garbage, collecting sorted garbage, and recycling garbage. The Law for Promotion of Effective Utilization of Resources has made it obligatory from April 2001 for companies to clearly mark products with an identification mark that indicates whether the packaging is paper or plastic. The objective is to make it easier for consumers to separate garbage for disposal.

Compliance with the labeling is not officially mandatory until March 2003, but the company issued Guidelines concerning labeling in August 2000 and began displaying this label on new and improved products released in January 2001.

As of March 2001, the company is placing the labels on 30% of the covered products, and we intend to raise this figure to 80% by the fall of 2001.



Examples of products with identification labels

(3) Measures concerning the revised Wastes Disposal and Public Cleaning Law

— Updating outsourcing contract and Industrial Waste Control Slip —

In correlation with revision of the Wastes Disposal and Public Cleaning Law, companies are now responsible for proper processing in all stages up to the final disposal, when it outsources the processing of industrial waste. In addition, companies are required to (1) enter the address of the final disposal site, final disposal method, and processing capacity of the facilities in the outsourcing contract, (2) attach a copy of the permit to the outsourcing contract, and (3) verify completion of the final disposal with an Industrial Waste Control Slip (manifest).

The company has implemented the following measures since October 2000 in compliance with the revised Wastes Disposal and Public Cleaning Law that went into effect in April 2001.

- ① Preparation of a template for the waste processing outsourcing contract and Industrial Waste Control Slip (manifest)
- ② Governmental verification of the legal compliance of entries
- ③ Verification of appropriate processing conditions up to final disposal (including site visits)
- ④ Renewal and re-conclusion of outsourcing contracts
- ⑤ Switch to the new manifest

Terms

- (1) The Container and Packaging Recycling Law : A law that was enacted to encourage the reuse of various containers and packaging materials, which make up the majority of household waste, as products. It obliges consumers to sort their waste, local authorities to collect waste according to classifications, and manufacturers to recycle waste and use it in products. When the law was initially introduced, it was limited only to glass and PET bottles. From April 2000, it was fully implemented to include paper and plastic.
- (2) Law for Promotion of Effective Utilization of Resources : In addition to recycling efforts, this law aims to promote reduction of waste disposal and reuse of functional parts of products to reduce the amount of materials used. The law went into force in April 2001 as an expanded, organized, and updated version of the Law for the Promotion of Utilization of Recycled Resources.
- (3) Waste Disposal Law : This law was established in 1970 as an updated version of the “Cleaning Law” to regulate waste discharge and pursue appropriate treatment of domestic waste. It was revised in 1991 and again in April 2001. The latest version advocates reinforced countermeasures for improper treatment and additional strict regulations for waste discharging firms and other new regulations.
- (4) Manifest : This is a control slip required every time a company contracts an industrial waste handling firm to dispose of waste. The company is to issue the manifest for all industrial waste under the Waste Disposal Law.

6 Environmental Accounting

The company has announced the breakdown of capital investments related to environmental measures, fluctuations and reduction targets for waste levels and energy consumption in the company's official report since 1973. We introduced environmental accounting last year and compiled the results for fiscal 1999 based on guidelines established by the Ministry of the Environment in Japan. The results are announced in the 2000 edition of the report, but because we believe that fluctuations over multiple fiscal years are required for effective environmental accounting management, we continued to compile the results in fiscal 2000.

The compilation method adopted is the same as last year, except we have added proceeds from sales of valuables to the economic effects from this year.

● Compilation method

- 1) Complies with the Guideline for the Introduction of Environmental Accounting System (2000 edition)
- 2) Costs for environmental preservation activities (including depreciation allowance), investment and its effect have been accounted for.
- 3) The effect has been calculated based on the effect of environmental preservation (physical unit) and the effect on the economy (currency unit).
- 4) Deemed effects such as aversion to risk are not included.

Results

Area covered: Kao Corporation and 4 Subsidiaries in Japan

Period: from April 1, 2000 to March 31, 2001

Environmental preservation costs (Unit: ¥million)			
Category	Main activities	Investment	Cost *1
Costs by business area		1,420	3,584
Breakdown	① Pollution prevention	To prevent air and water pollution, responding to PRTR	540
	② Preservation of the global environment	Energy saving	607
	③ Resource circulation	Processing and disposal of waste	273
Costs incurred during upstream and low-stream production process	Environmentally-conscious products, product recycling and packaging recycling	546	2,099
Costs of management activities	Obtainment and maintenance of ISO, education and environmental management	0	768
Costs of research and development	Development of environmentally-conscious products	188	2,262
Costs of social activities	Green and beautification activities and publicity about environmental activities	10	142
Costs of amendment of environmental damages		0	0
Total		2,164	8,855

* Note 1: These costs include depreciation allowances.

- The total investment was ¥2,164 million, of which the primary costs involved production facilities for refill products, launching co-generation, and improving capacity for effluence treatment.
- The total cost was ¥8,855 million, with major expenses being labor costs, depreciation, and waste disposal related expenses. These three expenses amount to 74% of the total cost.
- Environmental preservation costs have posted year-on-year increases of ¥712 million for investment and ¥918 million for costs. The increase in investment is due to production facilities for refill products and launching co-generation. Increased costs are due to adding staff for research and development related to the environmental measures.

Term

(1) Environmental accounting : This is a system to acknowledge, analyze and publish the effects, (expressed quantitatively as a monetary or physical unit as often as possible), achieved as a result of environmental preservation investment and activities within business operations. The aim is for the company to efficiently and effectively promote environmental preservation activities while maintaining a good relationship with society and managing sustainable growth.

Environmental preservation effects (physical unit)					
Items		Contents	Unit ^{★2}	Increase/decrease ^{★3}	Comparison
Effects by business area					Compared to the amount in 1990
Breakdown	① Pollution prevention	Reduction of emission of environmental pollutants	kg/¥million	SOx : 0.1 NOx : 0.0 COD : 0.0	
	② Preservation of the global environment	Reduction of Greenhouse gases Reduction of energy usage	kg/¥million ℓ/¥million	CO2 (converted to carbon) : 409 (Converted to crude oil) : 140	
	③ Resource circulation	Reduction of amount of generated waste and final disposal at off-site landfills	kg/¥million	Generated amount : 32 Final disposals : 48	

^{*} Note 2: The amount of value added units per ¥million. Value added unit is selling price-based production output, excluding variable production costs.

^{*} Note 3: + means increase, - means decrease.

- The environmental preservation effects were indicated in unit value added index for reduction level in fiscal 2000 based on that of fiscal 1999 when the company began implementation of measures.
- The company has dramatically reduced energy usage, CO₂ emissions, the amount of waste generated, and amount of final disposal. In particular, CO₂ emissions and the final amount of waste disposed have also declined in their absolute volume in fiscal 2000 to respectively 97% and 22% of their fiscal 1990 levels.
- Emission of NO_x remains at the same level as fiscal 1990 due to transfer from public power to self-generated power in order to increase energy efficiency in view of energy saving.

Economic effects (Currency unit) ^{*4}		(Unit:¥million)
Contents		Amount ^{*5}
Cost reductions through energy savings		359
Cost reductions through resource savings		759
Expense reductions, that is, reduction of costs for effluent and waste treatment and facility maintenance for environmental measures.		23
Proceeds from sales of items with value		117
Reduction in costs for plastics through use of environmentally-conscious products (refill products, compact products)		301
Total		1,559

^{*} Note 4: The effect is calculated only from the reduction of direct expenses. It does not include deemed effects.

^{*} Note 5: The amount is the total reduction of expenses of items that occurred in the reference year.

- The economic effects are calculated only in terms of direct cost reductions and sales of items with value. In other words, economic effects or deemed effects based on the assumption of evading risk is not included.
- Energy savings include cost reduction for fuel and electricity, while resource savings include expense reduction achieved by reducing obsolescence of raw materials as well as the amount of materials used.
- Cost reductions for resin resulting from environmental products are converted to monetary values by using the difference in the volume of plastics used for refill products and original products.

Future Issues The company introduced environmental accounting last year and officially disclosed the results. The major issue from now on is to use this effectively as a tool for administrative decisions. This points to the need to construct an index to show cost effectiveness quantitatively. We are planning to study formation of an index that matches company operations.

7 Specific Targets and Results in Fiscal 2000

The company sets promotional points for each of the Policies regarding the Environment, Safety and Health to conduct activities. Key items include specific numerical targets.

The chart below summarizes targets and results in fiscal 2000. Please refer to each page listed in the chart for more details.

Policies regarding the Environment, Safety and Health	Key promotional points	Page
Develop safe and environmentally-conscious products	Establishment of organizations for responsible care promotion	8
Save resources and energy, reduction of disposal waste	Promote measures to prevent global warming	27
	Promote energy conservation in production activities	27
	Reduce waste in production activities	28
Provide safety products with safety information	Enhance assessment system for product safety	18
	Improve use of MSDS and Yellow Cards	33
	Publish Environment, Safety and Health Report Disclose environmental accounting	12
Ensure safety and care for the environment of communities	Promote safe management of chemical substances	32
Maintain health and safety in the workplace	Promote safety and disaster prevention activities Maintain comprehensive safety management system for production facilities	34
Comply with laws and regulations	100% compliance with laws and regulations	10
Implement internal audits	Execute internal environmental audit and safety patrol	9
Employees' awareness of Kao's responsibilities	Promote employee training to raise their morale	10
	Promote social activities that support environmental preservation	36

Specific targets	Significant achievement in fiscal 2000
<p>Previous target: Reduce CO₂ emission in fiscal 2010 to the same level in fiscal 1990.</p> <p>New target: Reduce CO₂ emission in fiscal 2010 by 6% less than fiscal 1990.</p>	<p>CO₂ emission was 548,000 tons, which is 63,000 tons less than fiscal 1999 and 18,000 tons (3.2%) less than fiscal 1990.</p>
<p>Previous target: Reduce energy consumption to 85 in fiscal 2000 and to 75 in fiscal 2010, taking the unit value added index in fiscal 1990 as 100.</p> <p>New target: Reduce energy consumption to 75 in fiscal 2005 and to 70 in fiscal 2010, taking the unit value added index in fiscal 1990 as 100.</p>	<p>Energy consumption was 77.3 in the unit value added index, which is 7 points less than that of fiscal 1999. So the target has been achieved.</p>
<p>Previous target: Reduce the amount of final disposal to 22% in fiscal 2000 and to 20% in fiscal 2010, taking the figure in fiscal 1990 as 100%.</p> <p>New target: Reduce the amount of final disposal to 15% or less in fiscal 2010, taking the figure in fiscal 1990 as 100%.</p>	<p>The amount of final disposal was 4,500 tons, which is 100 tons less than fiscal 1999. As the percentage has reached to 22%, taking the figure in fiscal 1990 as 100%, the target has been cleared.</p>
<p>Reduce each individual substance designated by the Japan Chemical Industry Association to 1 ton or less in each individual plant.</p>	<p>The number of substances that haven't achieved the target has decreased from 15 to 13. The company is continuously making its efforts to reduce discharge of these substances, and further reduction is expected.</p>

Terms

- (1) MSDS : Abbreviation for "Material Safety Data Sheet." To prevent accidents related to chemical products, the MSDS includes data about safety management and is distributed for each product from the supplier to the user or company that handles the product.
- (2) Yellow Cards : In case of an emergency during transportation of chemical substances or high pressure gas, the card instructs the driver or other nearby representatives what to do, as well as how first-aid by fire fighters or police should be conducted.
- (3) Unit value added index : Amount of value added production output per unit. Value added production output is the amount of production on a selling price basis, excluding variable manufacturing costs.

Chapter 2

Environmental Preservation Activities

1 Activities to Preserve the Environment – Creating Environmentally-Conscious Products –

Kao conducts activities in accordance with the philosophy of Responsible Care. The aim is to independently manage the entire life cycle of a product from development through disposal in terms of the environment and safety. The majority of Kao's products are disposed of, through the process of product development, production, distribution, and consumption, as waste or effluence generated by households on the final stage. Consequently, the company continuously promotes production of environmentally-conscious products with attention to the following aspects:

• Products development and technological development

The company is designing products in such way as to reduce the burden on the environment as much as possible, as well as making sure products are safe for both people and the environment. Basic principles have been established to reduce the environmental burden. These are known as the “3 Rs” – Reduce, Reuse, and Recycle. Based on these principles, the company is proceeding with development in accordance with the specific policies given below.

- ① Reduce: Promote greater concentration and compacting of products.
- ② Reuse: Design packaging to be both resource conserving and easy to use.
- ③ Recycle: Aggressively use recycled paper and recycled resinous materials as recycling measures.
- ④ Develop technology to reduce the environmental burden: Contribute to reduce environmental burden throughout industrial areas.

• Production

The company of course complies with laws, and more importantly, establishes stricter “standards for self management” to reduce emissions and effluence. As for global warming, we have introduced co-generation facilities, which save energy by using energy efficiently. We have also changed the fuel to liquefied natural gas to reduce CO₂ emissions. The company has also initiated measures concerning industrial waste to suppress generation by improving productivity. When industrial waste is still generated after all these efforts, we reuse and recycle as much as possible to bring the amount of waste generated as close to zero as possible, i.e., “zero emissions”.

• Logistics

The company is working to optimize production and shipping volume, improve transporting efficiency by using larger vehicles and changing product specifications, promote modal shifts that switch transport means to those with less environmental burden, and conduct joint delivery for further efficiency from the perspective of reducing fuel consumption and gas emissions (SO_x, NO_x and CO₂).

Terms

- (1) Zero emission : To reduce disposable waste from business activities at plants and offices to as near to zero as possible by reusing it as raw materials and a source of heat at the company's own plants or other companies' plants.
- (2) Modal Shift : To switch from a transportation system utilizing predominantly lorries to environmentally-conscious marine and railway transportation.

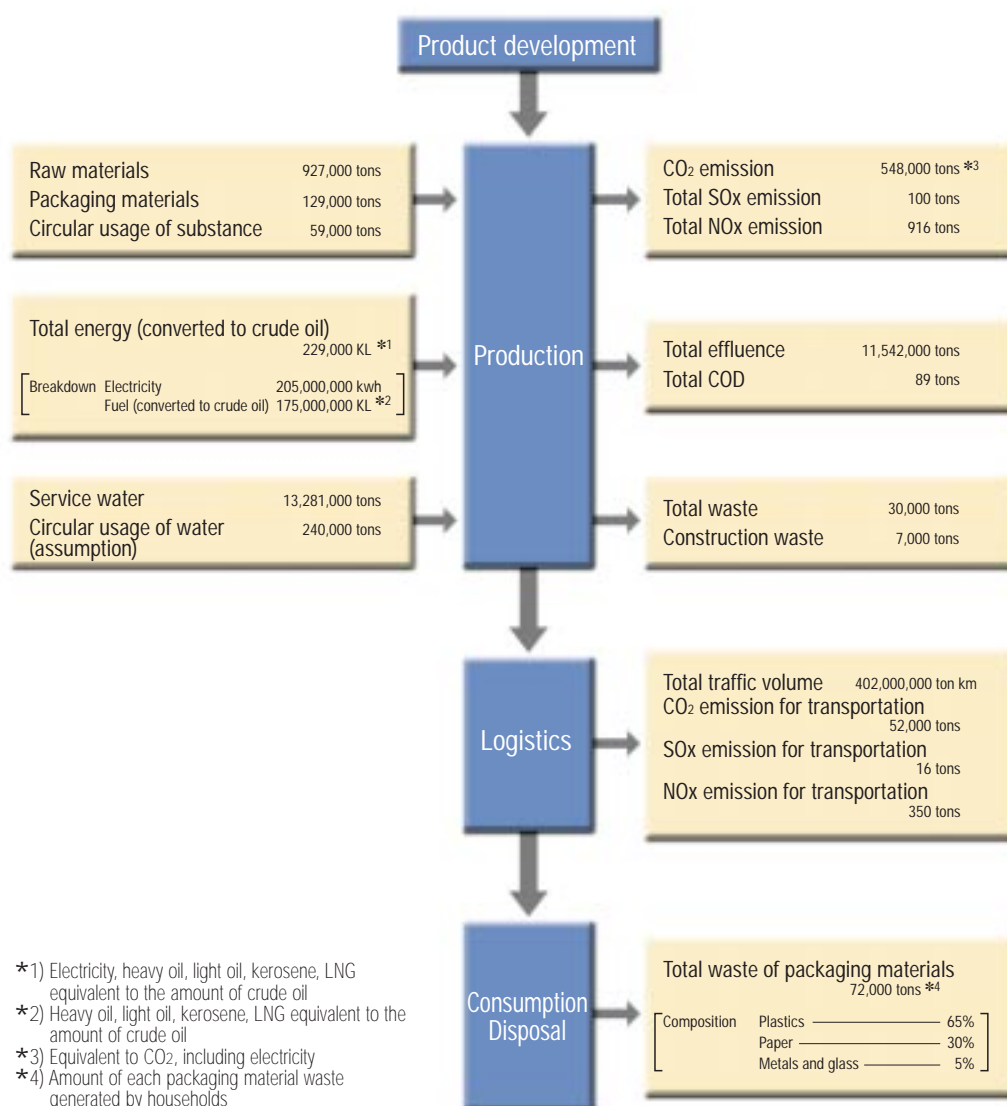
• Substance flow in business activities

The following shows the substance flow in business activities for fiscal 2000.

Beginning with the fiscal 2000, we have changed the calculating scope for substance usage to one-ton units. The calculation following this revision results in substance usage during fiscal 2000 posting a year-on-year increase of 0.7%. Other types of environmental burden data are also being reviewed based on the guideline index for environmental performance.

The topic of this year is greenhouse gas (CO₂) emissions, which have been reduced significantly by 10%, compared to last year. This was achieved mainly by promoting a switch in fuel to liquefied natural gas. In addition, the energy unit value added index improved 7 points over last year. These improvements are largely attributed to our efforts in energy conservation activities.

Substance flow through business activities (Fiscal 2000)



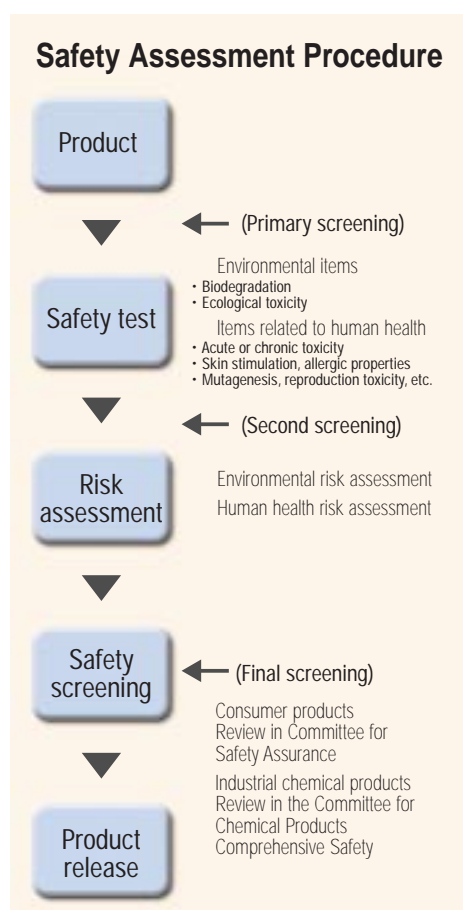
2 Product Development and Technological Development

(1) Confirm Safety for People and the Environment

The company assesses the safety of products with regard to their impact on human health and the environment in advance from the product development. We have established the “Kao Standards for Product and Material Safety Assessment” as our guidelines for product development to indicate our approach to safety assessment and standards for selecting raw materials.

When we develop new chemical substances that may be directly discharged into the environment, we verify biodegradation based on tests specified in the “Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances.” This is followed by tests where we examine the effects on aquatics such as fish, water fleas, and algae, as necessary.

Safety of consumer products and industrial chemical products are assessed using the process given below.



Consumer products

- After confirming that the product’s components match company standards (the primary screening), we classify the products into four categories based on whether or not they contain new raw materials, previous use, and other factors. We then assess the safety.
- After conducting a second screening based on laboratory safety tests of materials and products, field testing is conducted at a practical level, and the risk is assessed.
- The final judgment of product safety is made following review in a Committee for Safety Assurance. Safety is tracked even after products are released (voluntary post marketing survey), and safety is reassessed, as necessary. Representatives of the Consumer Information Center, Quality Promotion Division, Research & Development Division, and Product Safety Division are regular members of the Committee.

Industrial chemical products

After the safety assessment and checking for compliance with laws and regulations, the Committee for Chemical Products Comprehensive Safety conducts the final safety confirmation for the product. This Committee is composed of representatives from the Administration & Accounting Department, Planning Department, International Chemical Department, and Affiliates.

(2) Activities to Reduce — Promoting greater concentration and compactness —

The company has pursued greater concentration and compactness of products based on a belief that “reducing the use of raw materials” is the foundation of environmental measures. As a result, the percentage of compact-type products on a unit base in fiscal 2000 achieved 98% for laundry detergents, 84% for fabric softeners and 82% for dishwashing detergents.

14 compact-type products available on the market as of May 2001 are shown to the right.

Attack is a representative product of the company. It created a market sensation in 1987 on its release due to its epoch-making cleaning power and its compact size – 1/4 that of conventional detergents. It also contributed to the company’s energy conservation and the conserving of packaging material resources.






Even after its release, the company strove to make more eco-conscious products. In 1995, we concentrated *Attack* further so that the amount used for one load was only 20g. This is an example of our continued efforts to improve products. In fiscal 2001, improved *Attack*, with a 30% reduction in the use of surfactant, was relaunched.

Compact-type products (as of May 2001)

Classification	Product names
Laundry detergent (5)	<i>Attack</i> , <i>Attack Sheet-type</i> , <i>Attack liquid</i> , <i>New Beads</i> , <i>Emal delicate wash</i>
Fabric softener (3)	<i>Humming 1/3</i> , <i>Humming 1/3-floral</i> , <i>Humming 1/3-anti-bacterial Plus</i>
Laundry Bleach (1)	<i>Haiteer laundry bleach for colors 1/2</i>
Dishwashing detergent(5)	<i>Family herbal scent-concentrated</i> , <i>Family mild-type</i> , <i>More easy for hands-concentrated</i> , <i>Family concentrated</i> , <i>Family gel</i>

The numbers in parenthesis are the number of items of compact-type

Technical innovations of *Attack* laundry detergent from the view of environmental measures

	Before 1986	1987	1995	October 2000	March 2001
	Conventional detergents	<i>Attack</i> concentrated detergent	Greater concentration	<i>Attack Sheet-type</i>	<i>Attack</i> micro particles
Amount of detergent used in 30 liters of water	40g	25 g	20 g	15 g	Surfactants reduced by 30% compared to previous <i>Attack</i>
					



Detergent for one load is enclosed in a film made from a water-soluble sheet with a thickness of 0.03 mm.

Attack Sheet-type

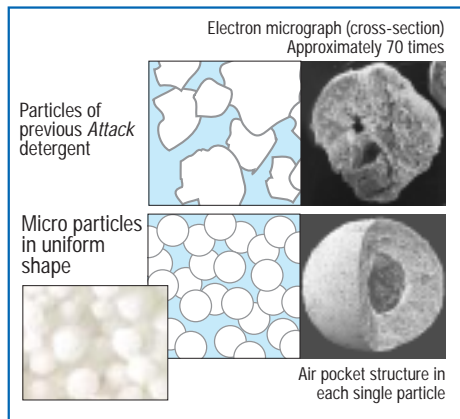
– Reduce amount of detergent used per load by 25% –

This product has realized a reduction of about 25% in weight from the previous *Attack*. It is also easy to use, as there is no need to measure out the detergent.

Attack micro particles

– Dramatically improves the cleaning power using less surfactant –

We developed the “microparticle production method” to respond to recent changes in washing machines which wash more laundry in less water in a shorter time. This method further improves the “cleaning power” and “solubility,” which are basic performance areas of powder detergents. This new method has enabled an increase in the percentage of non-ionic surfactants, which have high cleaning power in small amounts. Consequently, the cleaning ability has improved by 20%, even though the amount of surfactant used has been reduced by 30% compared to previous *Attack*.



Homogeneous and spherical micro particles



Air in the particle bursts, and detergent dissolves quickly in water.

Resource conserving bottle

The company's pursuit of resource conservation includes reducing the weight of product bottles. One example is the bottle for the body cleanser, *Fresh Herb*. Use of plastics in this bottle has been reduced by 40% compared to the company's conventional body cleanser bottles, and it is the lightest such bottle in Japan as of November 2000.

The bottle is thinner and has 8 ribs on its sides to reinforce its strength.



Ribs visible on a bottle

(3) Activities to Reuse

– Designing packaging that achieves both resource conservation and usability –

In April 2000, the Containers and Packaging Recycling Law went into full effect, and more consumers are now aware of the need for generating less waste. Kao is promoting reuse of product containers and functional parts by releasing more refill and replacement products and promoting use of such products.

As of May 2001, the number of refill products rose to 56, and replacement bottles to 10.

Refill products (as of May 2001)

Classification	Product names
Laundry detergent (3)	<i>Attack</i> liquid, <i>Attack</i> spot cleaner, <i>Emal</i> delicate wash
Fabric softener (3)	<i>Humming</i> 1/3, <i>Humming</i> 1/3 – floral, <i>Humming</i> 1/3 – anti-bacterial Plus
Laundry bleach (3)	<i>Halter</i> wide, <i>Halter</i> laundry bleach for colors, <i>Halter</i> laundry bleach for colors 1/2
Starch (1)	<i>Keeping</i>
Dishwashing detergent (5)	<i>Family</i> herbal scent – concentrated, <i>Family</i> concentrated, <i>Family</i> , <i>Family</i> mild, <i>More</i> easy for hands-concentrated,
Household cleaner (6)	<i>Family</i> sink cleaner, <i>Mypet</i> handy-spray, <i>Mypet</i> glass cleaner-liquid type, <i>Magiclean</i> multi-purpose, <i>Magiclean</i> bath cleaner-foaming spray, <i>Magiclean</i> deodorizing toilet cleaner
Kitchen/household paper product (2)	<i>Quickle</i> kitchen wipes, <i>Quickle</i> toilet wipes
Deodorizer (1)	<i>WILL</i> deodorizing mist for fabric
Pet care (1)	<i>Kao Pet Care</i> wet tissues
Body cleanser (6)	<i>Bioré U</i> powder-in, <i>Bioré U</i> (4), <i>Bioré U</i> cream-in
Shampoo/conditioner (5)	<i>Essential</i> damage care shampoo, <i>Essential</i> damage care conditioner, <i>Merit</i> shampoo, <i>Merit</i> conditioner, <i>Merit</i> two-in-one shampoo
Body care sheets (1)	<i>Bioré</i> make-up remover – cotton wipes
Deodorant (4)	<i>Bioré</i> deodorant powder sheets (3), <i>Bioré</i> for men deodorant powder sheets
Facial care (2)	<i>Qualité</i> tint powder, <i>Qualité</i> tint pact
Hair cosmetics (5)	<i>Success</i> hair water, <i>Lavenus</i> hair water, <i>Liese</i> water supply mint shower, <i>Liese</i> instant straight foam, <i>Liese</i> foam for permed hair
Bottom wipes (3)	<i>Merries</i> toilet disposable bottom wipes, <i>Merries</i> cotton-touch bottom wipes, <i>Relief</i> toilet-disposable wipes
Hygienic care (1)	<i>Sanina</i> toilet paper
Cosmetics (4)	<i>Nivea Visage</i> powder foundation refill, <i>Sofina</i> fine fit refill, <i>Sofina Raycious</i> refill, <i>Sofina</i> face powder refill

The figures in parenthesis indicate the number of items.

Replacement bottles (as of May 2001)

Classification	Product names
Household cleaner (3)	<i>Halter</i> mold removing spray, <i>Halter</i> mold removing spray-strong, <i>Magiclean</i> handy spray
Kitchen bleach (1)	<i>Halter</i> foam
Car care (1)	<i>Vega</i> car cleaner
Hair color (3)	<i>Blauné</i> semi-permanent hair color, <i>Blauné</i> semi-permanent hair color for gray hair, <i>Blauné</i> men's semi-permanent hair color
Toilet Aromatic/Deodorizer (1)	<i>Refre</i> plug-in type
Hygienic care (1)	<i>Sanina</i>











The figures in parenthesis indicate the number of items.

The company first released refill pouches in 1991. The form and functions of the pouches have been enhanced since then to achieve “easy refilling” and “less plastic use.”

A specific example is the “Insert type standing pouch (with side hooks),” which was first used for *Essential* shampoo and conditioner in July 2000. It used 9% less plastics than the existing refill containers. This container won the “Nikkei Sangyo Shimbun Award” of the Nikkei Excellent Products and Services Award in 2000, as an environmentally-conscious container.

At present, the “Insert type standing pouch (with side hooks),” is used for all shampoo, conditioner, and body cleanser refill products.

Changes in Kao refill standing pouches – For easy refill –

		1991	1994 - 1998		2000 -	
Laundry and cleaning	250 ml		February 1997  Straw-type			
	350/400ml		September 1997  Straw-type			
	450 – 720ml	September 1991  Center open type	September 1994 	February 2000  Side spout type (with a press line)		
	Powder type		September 1997  Insert type (for powder products)			
Personal care	450 – 550 ml		September 1996  Center open type	September 1997  Insert type (for liquid products)	August 1998  Insert type (for liquid products)	July 2000  Insert type (with side hooks)

• Making refilling easy

The wide use of refill products promotes “household reusable container,” therefore, it is important to provide products that are easy for consumers to use. For this reason, our development activities focus on “easy refilling.”

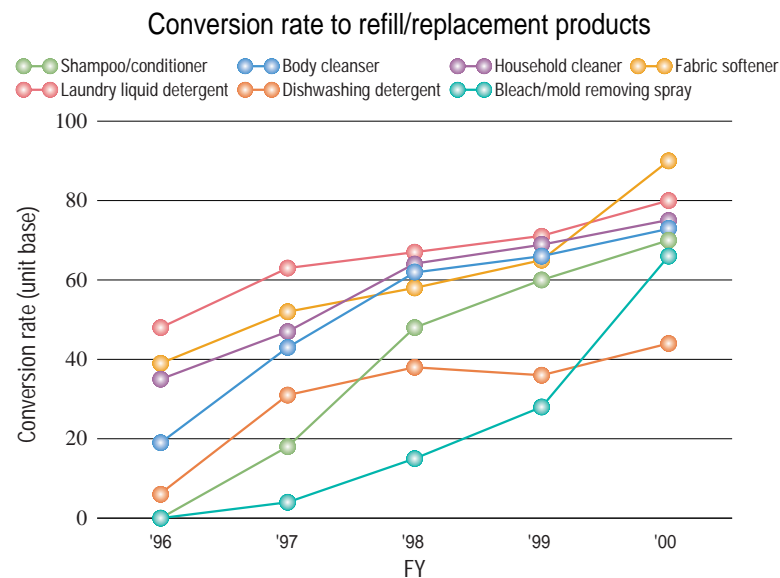
For instance, we make this task easy by providing refill pouches that are “easy to open by hand without scissors” and “easy to refill to match the shapes of containers and the properties of their contents.”

At present, there are the following four types of refill pouches.

- Straw type: Easy to pour into a narrow-mouthed bottle
- Side spout type (with a press line): Used to refill relatively thin liquid that doesn't drip
- Insert type (for powder products): Used so powder doesn't scatter while refilling
- Insert type (with side hooks): Through the innovative hook construction, the mouth of the pouch is placed in the bottle to squeeze out thick liquid contents

• Conversion rate to refill/replacement products

The conversion rate for products that have refill or replacement products started increasing rapidly in fiscal 1997, and surpassed 70% for most products in fiscal 2000.



Forms of refill pouches

Side spout type (with a press line) opens the cut edge properly when refilling.



Insert type (with side hooks) enables refill of the product by interlinking the side hooks to open the cut edge.



(4) Reduction of Packaging Materials through Reducing and Reusing

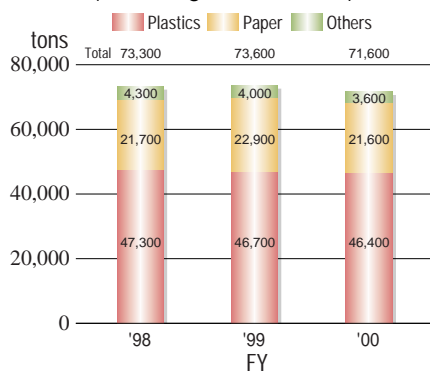
The amount of packaging materials, excluding outer cartons used by the company in fiscal 2000, totaled about 71,600 tons. This is 1,700 tons less than fiscal 1998 and 2,000 tons less than fiscal 1999.

The study of the fluctuation in the volume of each material used reveals a clear reduction in fiscal 2000 compared to fiscal 1998 in the unit value added index, which shows the amount of use per output unit.

As mentioned earlier, the company promotes reductions in the amount of packaging materials used by compacting products and releasing refill and replacement products.

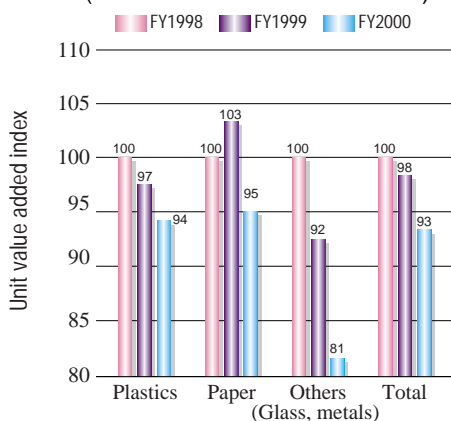
Product lines that currently have compact-type, refill or replacement products mentioned earlier contributed to reduction in plastics used as indicated in the figure below.

Amount of packaging materials used (excluding outer cartons)

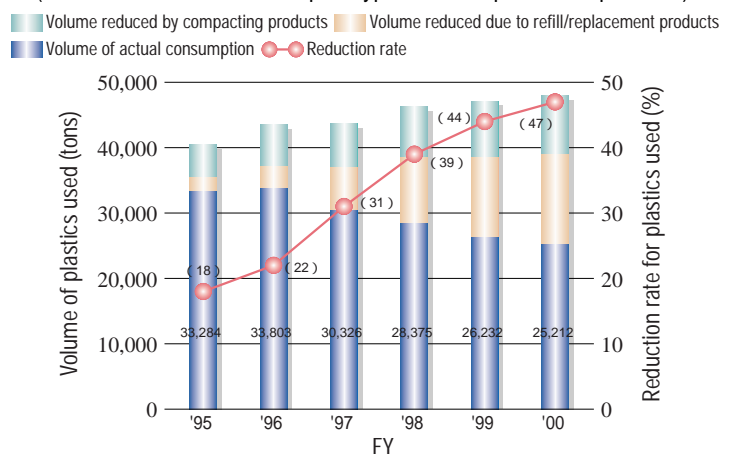


The amount of plastics used for product lines that have compact-type, refill or replacement products in fiscal 2000 was reduced to approximately 25,200 tons, which is 24% under the figure in fiscal 1995. If no compact-type or refill products had been released, the amount of plastics used in fiscal 2000 would have been approximately 47,900 tons, which means that introduction of compact-type or refill/replacement products reduced the amount of plastics used by 47%.

Unit value added index of consumption (Based on FY1998 index of 100)



Reduction effects for plastics used (Product lines that have compact-type or refill/replacement products)



(5) Activities to Recycle

– Use of Recycled Materials –

The company strives to promote recycling measures by using recycled paper and plastics, taking cost and quality into consideration.

Cartons used for *Attack* account for 40% of the total amount of paper the company uses for packaging, but they are made entirely of recycled paper. The measuring spoon for laundry detergent is also made from 100% recycled resin.

Cartons for other products mentioned below are also made of recycled paper.

Compounding ratio of recycled paper

Soaps	70~90%
Hair color	60~85%
Toothpaste	90%
Bath additives	70~90%

Recycling and reusing of containers for professional-use products

The company collects and recycles large-sized plastic bottles for high alkali detergent for dishwashers in professional use.

The collection rate in fiscal 2000 was only 10%, as the system has just been launched.

This figure, when converted into the resin quantity, equals a reduction of 8.8 tons. The company will continue to proactively promote recycling and has set the target collection rate of 20% for fiscal 2001.

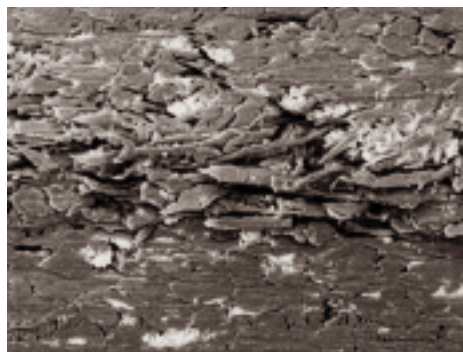
Flow of recycling and reusing of containers for professional-use products



(6) Technological Development to Reduce the Environmental Burden

– Contributing to Reducing the Environmental Burden as an Industry –

The company is striving diligently to develop professional-use products and technology for energy conservation, resource conservation, and reducing the environmental burden.



Cross-section of paper after processing with a bulking agent
(macro photography)

① Bulking agent for promoting the reuse of recycled paper and reducing paper weight

The company has developed deinking agents compatible with old newspaper and other various kinds of used paper (such as copy paper) and promoted resource saving and recycling in the paper pulp sector. Recently, the company has been involved in developing a bulking agent to realize lighter weight paper, increasingly necessary with the full-scale implementation of the Container and Packaging Recycling Law.

This technology produces paper that is lighter than regular paper by adding bulking agent into the dissolved pulp during the paper making process to create pockets inside the paper. The quantity of pulp consumed is reduced by 10% compared to conventional paper, but the thickness is maintained, and the strength of the paper is unchanged. Since this technology is applicable to used paper whose pulp fiber is deteriorated and cannot be made thicker; it expands the range of use of used paper.



Fatty alcohol facilities
with world-first fixed-bed hydrogenation method
(Pilipinas Kao Inc.)

② Development of new production process to reduce the environmental burden and manufacture high quality fatty alcohol

In the production of natural fatty alcohol, which is an intermediate material for various industrial materials centered on surfactants, the company has developed original fixed-bed hydrogenation method to improve the quality and reduce the environmental burden.

Lower reaction temperatures have been realized by developing new long-life catalysts and original fixed-bed technology. This innovation has reduced the fuel burden and improved yield, which has contributed respectively to energy conservation and reduced waste. Operation of fatty alcohol facilities using this new production process started at Pilipinas Kao Inc. (Philippines) in the summer of 2001, following Fatty Chemical (Malaysia) Sdn. Bhd. (Malaysia). The company's production activities are conducted with an eye on environmental safety and are highly evaluated in each country.

③ Other projects

As an alternative cleaning agent to chlorofluorocarbons or chlorine solvents used for cleaning print boards or semiconductors, the company is developing a highly functional water based cleaning agent, whose main component is surfactant, and a cleaning system which simplifies wastewater treatment.

3 Production

(1) Trends and Breakdown of Capital Investment

The company's capital investment in environmental measures was conducted in a focused manner in 1973, following enactment of various pollution prevention laws. It has been continued since then as a means to preserve the environment.

Since environmental accounting was introduced last year, the definition and standard of capital investment in environmental measures were reevaluated, and production facilities for environmentally-conscious products and investment for research and development of environmentally-conscious products were incorporated.

This year's results The total investment in fiscal 2000 was ¥2.16 billion, which accounts for about 6% of domestic capital investment. The cumulative capital investment from fiscal 1973 is ¥27.6 billion.

This is a year-on-year increase of roughly 700 million yen due primarily to the third phase co-generation facilities in the Wakayama Plant, introduced as an energy conservation measure, and the addition of production facilities for refill and replacement products. Measures to reduce the discharge of chemical substances have been implemented each year since fiscal 1999, and almost all of the corporate measures have been completed.

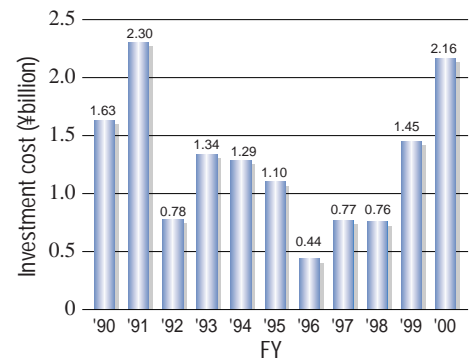
(2) Energy Conservation

Since 1990, the company has implemented energy conservation activities to reduce the amount of energy use and CO₂ emissions as follows:

- Reduce the amount of energy used in fiscal 2000 and 2010 in terms of the unit value added index to 85 and 75 respectively in comparison with the index of 100 in fiscal 1990.
- Restrict the amount of CO₂ discharged in 2010 to the same level as 1990.

Our primary measures for achieving the above include developing products that have a low environmental burden, introducing co-generation facilities, improving energy efficiency by improving production processes, and recovering waste heat.

Trends of capital investment in environmental measures



Breakdown of capital investment in environmental measures

Unit : ¥ million

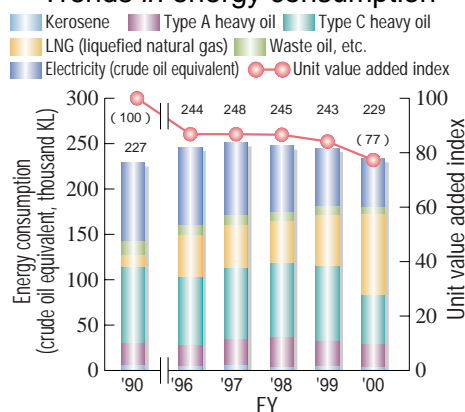
Items	Investment	
	FY 1999	FY 2000
Measures for saving energy and reducing CO ₂	183	607
Measures to prevent air pollution	237	77
Measures to prevent water pollution	344	335
Measures for waste reduction and recycling	226	273
Measures to counter noise, vibrations and odors	32	128
Environmentally-conscious production facilities	150	546
Environmentally-conscious R&D	224	188
Others	56	10

Total 1,452 2,164

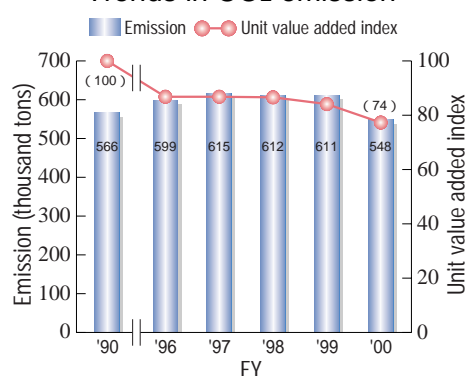
Introduction of co-generation facilities

1991	Tochigi Plant 1st, 2nd, 3rd facilities; Toyohashi Plant 1st, 2nd facilities
1992	Wakayama Plant 1st, 2nd facilities
1994	Kashima Plant 1st facilities
1995	Ehime Sanitary Products 1st, 2nd facilities; Kawasaki Plant 1st facilities
1997	Tokyo Plant 1st facilities; Tochigi Plant 4th facilities
1999	Kawasaki Plant 2nd facilities
2000	Wakayama Plant 3rd facilities
2001	Sakata Plant 1st facilities

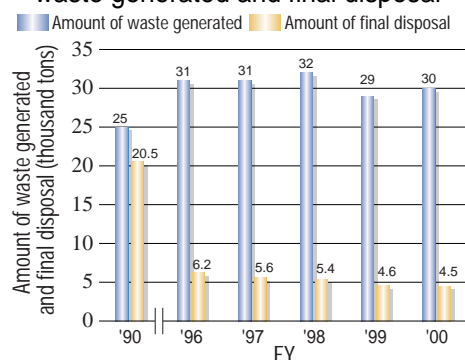
Trends in energy consumption



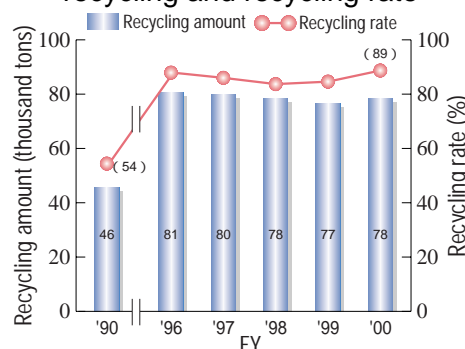
Trends in CO₂ emission



Trends in the amount of waste generated and final disposal



Trends in the amount of recycling and recycling rate



This year's results Energy usage has been reduced 14,000KL when converted to crude oil and has improved by 7 points in the unit value added index compared to last year. This is attributed to activities across 113 items, mainly (1) improved capacity of production facilities, (2) recovering exhaust heat, and (3) optimizing operation methods.

The fiscal 2000 unit value added index was 77, signifying that the previous goal of 85 has been achieved. The company has set new goals of 75 in 2005 and 70 in 2010, and will further promote activities to attain these.

The amount of CO₂ emissions has been reduced by 63,000 tons, and the unit value added index has improved by 11 points compared to last year. The major reasons are (1) changing to LNG fuel, and (2) introducing co-generation facilities.

CO₂ emissions in fiscal 2000 were even less than fiscal 1990 by 18,000 tons (3.2%), again signifying that a previous goal has been attained. The company fortifies activities for higher achievement and sets a new target to reduce CO₂ emissions by 6% in 2010 in comparison with 1990.

Future Issues In our aim to achieve new goals, the company will further promote energy conservation and global warming prevention measures mainly by introducing more co-generation facilities, and changing to LNG fuel. In particular, we will continue to strengthen energy conservation activities including recovering exhaust heat and conserving electricity.

The company will also consider use of renewable energy (natural energy) for environmental efficiency.

(3) Reduction of Waste

The company has been tackling the 3 Rs for waste discharge by positioning the reduction of waste as an issue to solve as a priority. As for final disposal levels, we have established the goal of a 22% reduction in fiscal 2000 compared to fiscal 1990 and have implemented the following measures to attain this.

- ① Reduce the amount of waste generated by reviewing the production process.
- ② Recycling fat and oil sludge, and waste oil
- ③ Recycling outer carton, used paper, glass and metal
- ④ Incinerate drain sludge, waste oil, waste fluid, and miscellaneous garbage internally.
- ⑤ Recycling burnt residue

We revised our performance review method to include both internally-handled waste as well as waste disposed of at off-site landfills in accordance with the "Environmental Performance Index Guidelines" fixed by the Ministry of the Environment.

This year's results The amount of waste generated (total of waste and items with value except products) posted a slight year-on-year increase, but the final disposal amount was reduced by 100 tons to 4,500 tons. This marks a reduction in final disposals of 22% compared to fiscal 1990 and the achievement of our previous goal. The improved recycling of waste (recycling rate) contributed to this achievement. With a new goal to reduce the final disposal amount in fiscal 2010 to 15% or less in comparison with fiscal 1990, we are proactively promoting the reduction of waste discharge and final disposal.

Future Issues Reduction of discharged waste, particularly the achievement of zero final disposal is an important issue. Although residue and ash from incineration are currently disposed of, but we aim to achieve zero emissions swiftly in consideration of environmental efficiency.

(4) Reduction of Air Pollution

To reduce SOx emission, the company has implemented flue gas desulfurization from large boilers, and changed the fuel used in small boilers from type C heavy oil to kerosene or type A heavy oil, which have a lower sulfur content.

The company has also installed low NOx burners to reduce NOx emissions, and changed over from public power to self-generated power generation to improve energy efficiency.

Liquid natural gas (LNG), or so-called “clean energy” is promoted for use at the plants located in urban areas and industrial complexes.

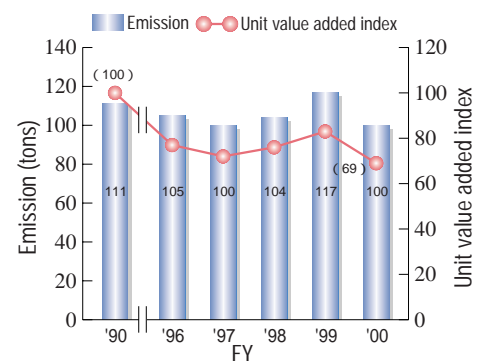
This year's results Continuing from fiscal 1999, in fiscal 2000, we strove to lower the environmental burden by installing co-generation facilities with gas turbines at the Wakayama Plant.

As a result, annual emissions of SOx dropped by 17 tons to 100 tons. The unit value added index was lowered to 69 in comparison with the fiscal 1990 index set as 100.

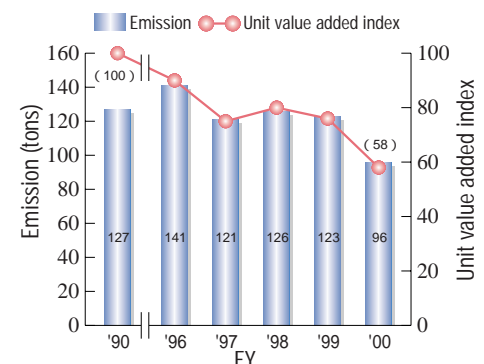
The annual emissions of NOx dropped by 132 tons to 916 tons compared to the previous year. The unit value added index is 99 in comparison with the fiscal 1990 index set as 100.

Soot and dust were reduced by 27 tons from last year due greatly to the shift to LNG at the Wakayama Plant. The unit value added index for the fiscal 2000 was 58 in comparison with the fiscal 1990 index set as 100.

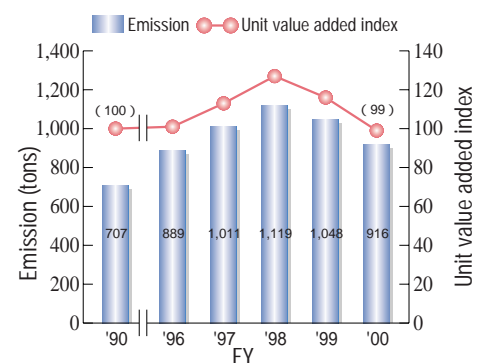
Trends in SOx emission



Trends in NOx emission



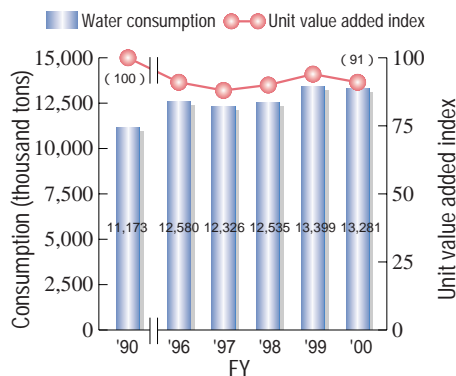
Trends in soot and dust emission



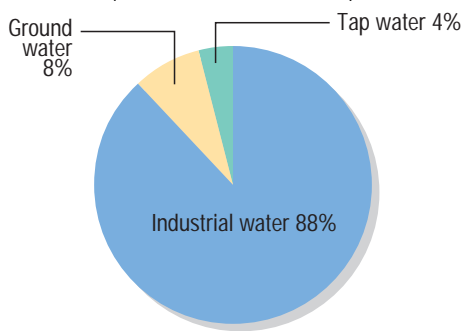
Term

(1) SOx, NOx : SOx is a generic term for sulfur oxide, which is generated from burning chemical fuels containing sulfur, SO₂, SO₃ or acid mist. NOx is a generic term for nitrogenous substance, which is generated from fuels, NO or NO₂.

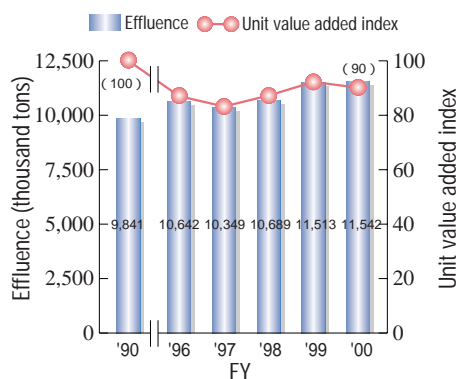
Trends in water consumption



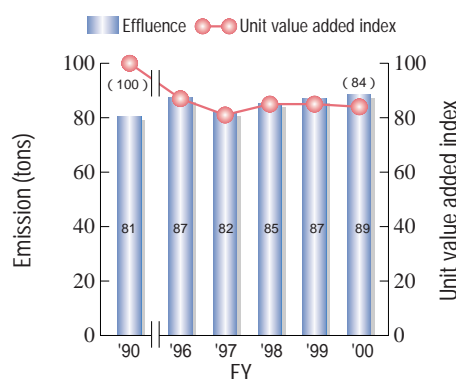
Breakdown of water consumption in fiscal 2000 (Total 13,281,000 tons)



Trends in the amount of effluence



Trends in COD emission



(5) Reduction of Water Pollution

The company uses water as a raw material, water to rinse equipment when switching product types, processed water for heating steam and cooling water, and tap water for drinking, toilet and other daily uses.

We have emphasized comprehensive effluence treatment measures since 1972 and have implemented “coagulation treatment,” “biological treatment,” “activated carbon treatment” and other processes.

This year's results In fiscal 2000, the annual use of water was almost the same level as the previous year at about 13,000,000 tons. Of this total, 88% is comprised of industrial water. In addition, the effluence level was also about the same at roughly 11,500,000 tons.

Following fiscal 1999, we continued to improve capacity of our effluence treatment facility and were able to lower COD to 84 at the unit value added index compared to fiscal 1990.

(6) Prevention of Soil Pollution

The company measures 26 substances related to groundwater pollution that are subject to environmental standards at a well inside the Wakayama Plant. The results are shown below, and the well water was recognized to be pollution free.

No.	Plant	Wakayama Plant			Standard value for ground water (Unit: mg/L)
	Deep well name Sampling Date	Measuring point A June 19, 2000	Measuring point B June 19, 2000	Measuring point C June 19, 2000	
1	Cadmium	SVL	SVL	SVL	0.01 or less
2	Total Cyanide	ND	ND	ND	ND
3	Lead	SVL	SVL	SVL	0.01 or less
4	Chromium (VI)	SVL	SVL	SVL	0.05 or less
5	Arsenic	SVL	SVL	SVL	0.01 or less
6	Total Mercury	SVL	SVL	SVL	0.0005 or less
7	Alkyl Mercury	ND	ND	ND	ND
8	PCBs	ND	ND	ND	ND
9	Dichloromethane	SVL	SVL	SVL	0.02 or less
10	Carbon Tetrachloride	SVL	SVL	SVL	0.002 or less
11	1,2-Dichloroethane	SVL	SVL	SVL	0.004 or less
12	1,1-Dichloroethylene	SVL	SVL	SVL	0.02 or less
13	cis 1,2-Dichloroethylene	SVL	SVL	SVL	0.04 or less
14	1,1,1-Trichloroethane	SVL	SVL	SVL	1.0 or less
15	1,1,2-Trichloroethane	SVL	SVL	SVL	0.006 or less
16	Trichloroethylene	SVL	SVL	SVL	0.03 or less
17	Tetrachloroethylene	SVL	SVL	SVL	0.01 or less
18	1,3-Dichloropropene	SVL	SVL	SVL	0.002 or less
19	Thiuram	SVL	SVL	SVL	0.006 or less
20	Simazine	SVL	SVL	SVL	0.003 or less
21	Thiobencarb	SVL	SVL	SVL	0.02 or less
22	Benzene	SVL	SVL	SVL	0.01 or less
23	Selenium	SVL	SVL	SVL	0.01 or less
24	Nitrate-N and Nitrite-N	SVL	SVL	SVL	10 or less
25	Fluorine	SVL	SVL	SVL	0.8 or less
26	Boron	SVL	SVL	SVL	1 or less

SVL : Standard value or less ND : Not detectable

4 Distribution

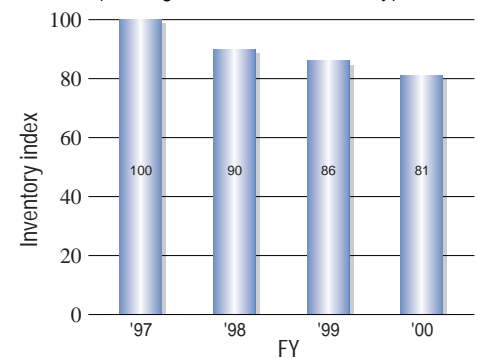
The company is striving to optimize production and shipment, enlarge the size of vehicles, improve forms of transportation by changing the specifications of the products, promote modal shift, which loads less to environment, and improve efficiency by joint delivery to reduce fuel consumption and exhaust. The estimated exhaust generated due to distribution is indicated in the diagram of substance flow on page 17.

Examples of major activities and their results are shown below.

(1) Promote Supply Chain Management to Save Energy and Resources

Departments responsible for production, distribution, and sales are working together on Supply Chain Management activities. The key to the activities is to “supply the right thing in the right amount at the right time.” Since 1997, the company has forecasted shipment at each distribution base in Japan, planned transportation based on the forecast to increase efficiency in vehicle loading and equalize load volume. As a result, the stock of consumer products in fiscal 2000 has been reduced by 2,200,000 packages compared to fiscal 1997. The reduced amounts are equal to the amount loaded on 2,200 10-ton trucks. This implies that CO₂, SO_x, and NO_x emissions were reduced by 577 tons, 181kg, and 4 tons respectively. Trends in inventory are shown below, based on average month-end inventory in 1997 as 100.

Trends in inventory index for consumer products
(Average month-end inventory)



(2) Promotion of Efficient Transportation and Modal Shift

The company's total annual distribution, including the distribution of final products and intermediary products distributed between plants, is 1,700,000 tons. The forms of transportation that the company utilizes to distribute its products includes various trucks, large-size trailers, and sea and rail containers. However, in recent years, in order to increase efficiency and reduce costs, the company has shifted transportation to larger-sized vehicles and sea containers. The company has changed specification of products and uses larger-sized vehicles to improve efficiency of transportation of consumer products. As a result, we reduced loads equal to 1,032 10-ton trucks, which can be converted to 271 tons of CO₂, 85kg of SO_x, and 1.9 tons of NO_x emissions.

The company will continue to further promote efficient transportation and modal shift.

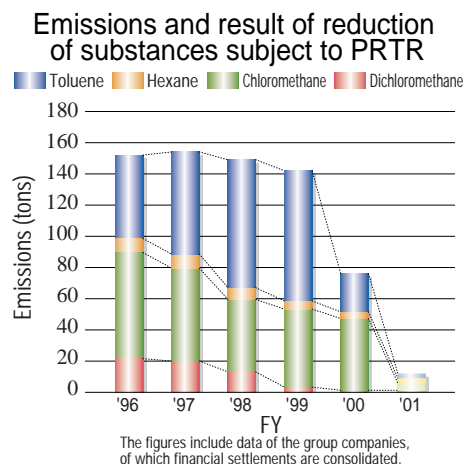
Term

(1) SCM (Supply Chain Management) : A method that manages business activities from the upper to the lower stream by using computers. All related sections share data, including sales and inventory, in order to achieve optimum procurement, manufacturing and distribution.

Chapter 3

Management of Chemical Substances

1 Substances subject to PRTR



The company has participated in the PRTR survey conducted by the Japan Chemical Industry Association for the past several years. We have reported emissions and transport levels involving the environment for chemical substances handled or manufactured by the company. These results were also covered in last year's report.

The chemical substance management promotion law (PRTR Law) will require emissions levels to be reported from fiscal 2002. Therefore, we shifted our survey in fiscal 2000 from the conventional substances listed by the Japan Chemical Industry Association to those subject to the PRTR Law. Consequently, the substances that the company is obligated to report number 59 and are included in the table below. Our total use level for the year was 199,000 tons, and there were 78 tons of emissions into the air. The table also indicates the emissions levels per subject substance.

As for substances emitted into the air in large volumes, the company set a target to reduce emissions to less than one ton annually per plant and established measures to attain this target. As a result, the emissions were dramatically reduced in fiscal 2000, as the figure indicates in the graph to the left.

Furthermore, we have independently implemented reduction measures for propylalcohol and ethyl acetate, although these substances are not subject to the law. Emissions of both substances were greatly reduced in fiscal 2000.

Amount of emission of substances subject to PRTR Law (FY 2000)

(tons)

Cabinet order No.	Names of substances	Amount of emissions in the air	Cabinet order No.	Names of substances	Amount of emissions in the air
1	Zinc compounds (water-soluble)	0.0	177	Styrene	0.0
3	Acrylic acid	0.0	205	Terephthalic acid	0.0
4	Ethyl acrylate	0.0	207	Copper salts (water-soluble, except complex salts)	0.0
6	Methyl acrylate	0.0	227	Toluene	25.0
7	Acrylonitrile	0.0	231	Nickel	0.0
16	2-Aminoethanol	2.0	232	Nickel compounds	0.0
17	N-(2-Aminoethyl)-1,2-ethanediamine: Diethylenetriamine	0.0	242	Nonylphenol	0.0
21	m-Aminophenol	0.0	251	bis (Hydrogenated tallow) dimethylammonium chloride	0.0
23	1-Allyloxy-2,3-epoxypropane	0.0	254	Hydroquinone	0.0
24	n-Alkylbenzenesulfonic acid and its salts (alkyl C=10-14)	0.0	266	Phenol	0.0
28	Isoprene	0.0	269	di-n-Octyl phthalate	0.0
29	4,4'-Isopropylidenediphenol: Bisphenol A	0.0	270	di-n-Butyl phthalate	0.0
40	Ethylbenzene	0.2	273	n-Butyl benzyl phthalate	0.0
42	Ethylene oxide	0.3	292	Hexamethylenediamine	0.0
43	Ethylene glycol	0.0	297	Benzyl chloride	0.0
46	Ethylenediamine	0.0	298	Benzaldehyde	0.0
54	Epichlorohydrin	0.1	300	1,2,4-Benzenetricarboxylic 1,2-anhydride	0.0
56	1,2-Epoxypropane: Propylene oxide	0.0	304	Boron and its compounds	0.0
58	1-Octanol	0.0	307	Poly (oxyethylene) alkyl ether (alkyl C=12-15)	0.0
59	p-Octylphenol	0.0	308	Poly (oxyethylene) octylphenyl ether	0.0
63	Xylene	0.2	309	Poly (oxyethylene) nonylphenyl ether	0.0
65	Glyoxal	0.0	310	Formaldehyde	0.0
68	Chromium and chromium (III) compounds	0.0	311	Manganese and its compounds	0.0
80	Chloroacetic acid	0.0	313	Maleic anhydride	0.0
95	Chloroform	0.4	314	Methacrylic acid	0.0
96	Chloromethane: Methyl chloride	48.9	318	2-(Dimethylamino)ethyl methacrylate	0.0
102	Vinyl acetate	0.0	320	Methyl methacrylate	0.0
145	Dichloromethane: Methylene dichloride	0.6	336	3-Methylpyridine	0.0
166	N,N-dimethyldodecylamine N-oxide	0.0		Total	77.7
176	Organic tin compounds	0.0	179	Dioxins (unintentionally formed substances, unit: mg per year)	108.6

2 Management of Safety Information on Industrial Chemical Products

(1) Management of safety information on chemical substances (Management Safety Data Sheet)

The company has developed Master Index (MI), the company's own unique code to identify the chemical substances. We are also building a system that can manage all chemical substances from the individual ingredients to compounded final products. As a part of this system, the company has been operating the safety database, new MSDS preparation system, and legal regulations database since spring 2001. The MSDS preparation system is compliant with the PRTR Law (effective April 2001), Industrial Safety and Health Law (revised April 2000), and the Poisonous and Deleterious Substances Control Law (revised January 2001). The following table shows the number of products for which MSDS has been prepared.

Number of products for which MSDS has been prepared

	Prepared in fiscal 2000			Cumulative total
	Newly prepared	Revised	Subtotal	
Japanese version	528	1,023	1,551	3,249
English version	171	0	171	912
US version	44	47	91	300
EU version	30	1	31	174

(2) Safety initiatives in distribution (Yellow Cards in Japan)

In order to prevent accidents during the transportation of industrial chemical products, the company provides training and safety information to all drivers. The company regularly conducts distribution liaison conferences with transportation companies and provides drivers with instructions, safety information, and information on appropriate labeling of dangerous items. The company furnishes comprehensive safety information in public by establishing systems to see MSDS via the internet at each distribution base for chemical products.

In case of an accident during transportation, the company has prepared Yellow Cards, which state the properties of the chemical substances, the steps to be taken in an emergency situation, the parties to be notified, and first-aid measures to be adopted in an emergency. These cards are held by the drivers. 50 Yellow Cards were issued in fiscal 2000, so accumulative total of Yellow Cards issued is 4,929.

(3) Compliance with laws and regulations when exporting chemical substances (Export management)

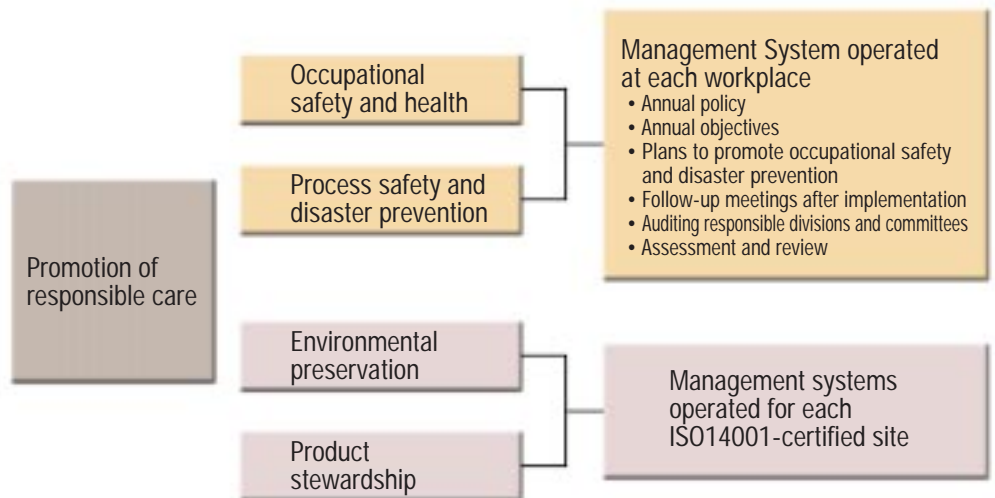
When exporting products and samples, it is necessary to properly classify items in accordance with the United Nations dangerous substances classifications. Also, in order to comply with security export regulations, Kao determines whether a classification agrees to the Export Trade Control Ordinance to contribute toward sustaining international peace and safety. The company has newly prepared the database for laws and regulations to swiftly and appropriately judge whether their export clears the laws and regulations.

Chapter 4

Activities for Occupational Safety and Disaster Prevention

1 Management System for Occupational Safety and Disaster Prevention

The company is pursuing creation of a workplace in which disasters don't occur based on the concept that "Safety is the foundation of corporate activities." Although efforts for this goal positively improve the management level for occupational safety and health every year, all potential dangers have not yet been eliminated. This is revealed by the fact that there have been reports about workplace incidents that surprise and alarm workers. We continue to pursue a reduction in these potential dangers and implement "Management System for Occupational and Disaster Prevention" at each workplace.

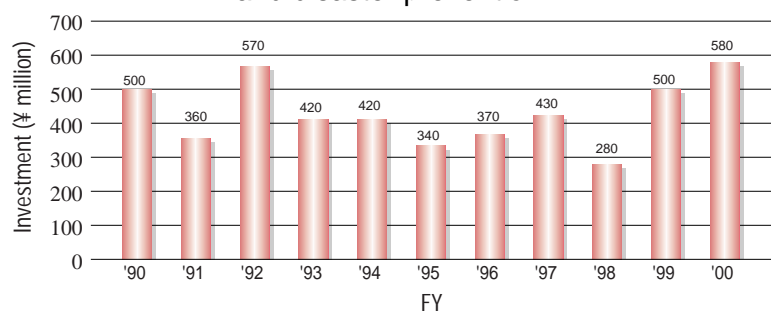


2 Performance of Occupational Safety and Disaster Prevention Activities

(1) Capital Investment

The total investment for occupational safety and health, process safety and disaster prevention rose slightly to 580 million yen (about 0.1% of sales). The breakdown is, measures for occupational safety and work environment improvement accounted for 57%, countermeasures for explosions, fires, and leakage 13%, countermeasures for earthquakes and other natural calamities 25%, and other 5%.

Trends in investment in measures for occupational safety and disaster prevention

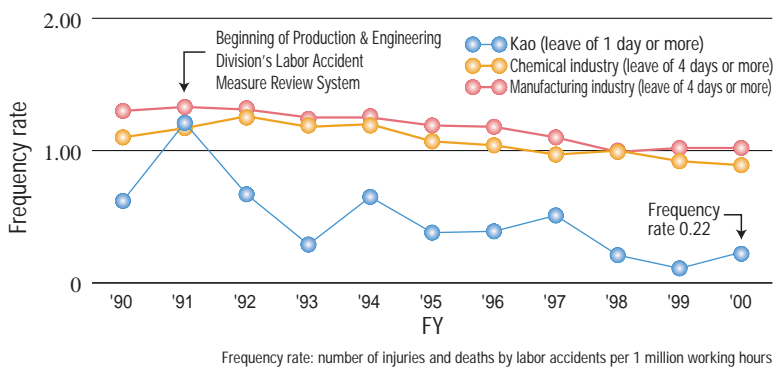


(2) Trends in Labor Accidents in Japan

Kao aims to achieve “from zero injury to zero danger,” in other words, to develop workplaces where all employees can work safely by identifying possible risks and avoiding them.

In fiscal 2000, labor accidents resulting in leave at the Production & Engineering Division and Research & Development Division totaled two. We continue to strive to achieve a zero level of labor accidents. The company recently introduced the risk assessment for machines and equipment. It is shown in the following section.

Trends in labor accidents in Japan (Frequency rate)

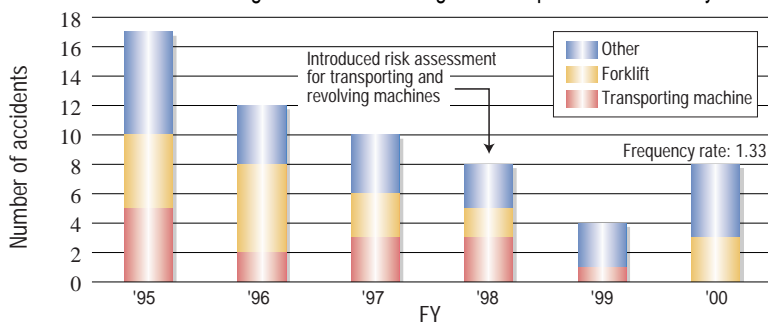


(3) Effects from Introducing Risk Assessment for Machines and Equipment

The number of labor accidents nationwide in fiscal 2000 at Kao logistics companies resulting in people taking leave from work reached eight, a figure greater than the preceding year. However, accidents involving transporting machines and revolving equipment, which lead to serious accidents, particularly accidents resulting from people becoming “caught” in machinery following contact with it totaled “zero.”

The company is also conducting risk assessment in which it extracts the potential risk and determines whether such risk is at a level deemed admissible for workers or not. If that risk is greater than what is deemed admissible, the potential cause (source of the danger) of the labor accident is eliminated or reduced. This activity has been conducted for two years and is bearing fruit to reach zero accidents that relate to transporting machines and revolving equipment.

Trends in accidents resulting in leaves at Kao logistics companies classified by cause



- Risk = (Frequency rate of potential labor accident) x (Critical level of labor accident): Index shows scale of danger.
- Other accidents: Accidents resulting from unsafe actions of workers, including fractures caused by falling when handling freight or walking, and sprains caused when jumping off vehicles.

Exchanges with Local Communities and Consumers

The company aggressively conducts activities to contribute to society with the recognition that activities to enhance and improve mental well being and to protect and foster an environment beneficial to children and future generations are significant roles for companies.

In addition to promptly responding to opinions and requests from consumers and customers, we make efforts to identify potential needs and reflect them in our corporate activities through continuous interaction with consumers and customers.

1 Support Environmental Preservation Activities - Support the "Creating Forests for Everyone" campaign -

Since 2000, Kao has supported the "Creating Forests for Everyone" campaign, which is organized by the Urban Greenery Fund, in response to the desire to create an environment where people can come into close contact with nature in their living environment.

Support methods

The company promotes the "Creating Forests for Everyone" campaign at stores and donates a part of sales of Kao products to the Urban Greenery Fund during the campaign period. The fund is utilized to nurture greenery and support environmental preservation activities conducted by volunteer groups and non-profit organizations (NPO) in Japan. Activities include preservation of trees, planting, cutting weeds, creating ponds and bird feeders, and nurturing big trees that can become a symbol of the community.

In fiscal 2000, the company supported activities conducted by 25 organizations, whose locations are shown on the map below.

Location of organizations selected for donation in fiscal 2000



2 Environmental Preservation Activities in the Community

(1) Environmental beautification activities

In an effort to beautify the environment of the community, cleanups are carried out regularly in the vicinity of each of Kao's plants. In addition to beautification of the surrounding area of the plant, for example, twice a year in spring and autumn, about 100 people participate in the "Beautiful Holiday" activity to clean Wakayama Castle, which is a symbol of Wakayama Prefecture.

The company also conducts a "Walking and Cleaning" activity. Parents and children hike and pick up trash cans and garbage. Each plant conducts a variety of activities to beautify the environment of the community.



Cleaning up around the Wakayama Castle

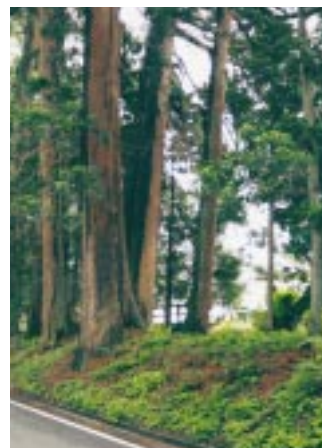
(2) Environmental preservation activities

– Preservation of Nikko cedar colonnade –

The Nikko cedar colonnade was built by planting approximately 24,000 trees along the three roads leading to Nikko Toshogu Shrine 370 years ago. 13,000 trees currently remain, but approximately 100 trees die every year due to pollution from traffic and environmental deterioration.

The colonnade is now protected under the management of Tochigi Prefecture as a designated national property. Nikko Cedar Colonnade Ownership began in the autumn of 1996. As it was the first project of this kind, the system was introduced not only in Tochigi Prefecture but widely throughout Japan.

In support of the purpose of this activity, the company contributes to the preservation of this historical cedar colonnade.



Nikko cedar colonnade

– Preservation of pine forest –

The Wakayama Plant carefully preserves pine forest, which has existed since the Edo Era, around the plant site.



Pine forest on the site of the Wakayama Plant

3 Communication with Consumers and Customers

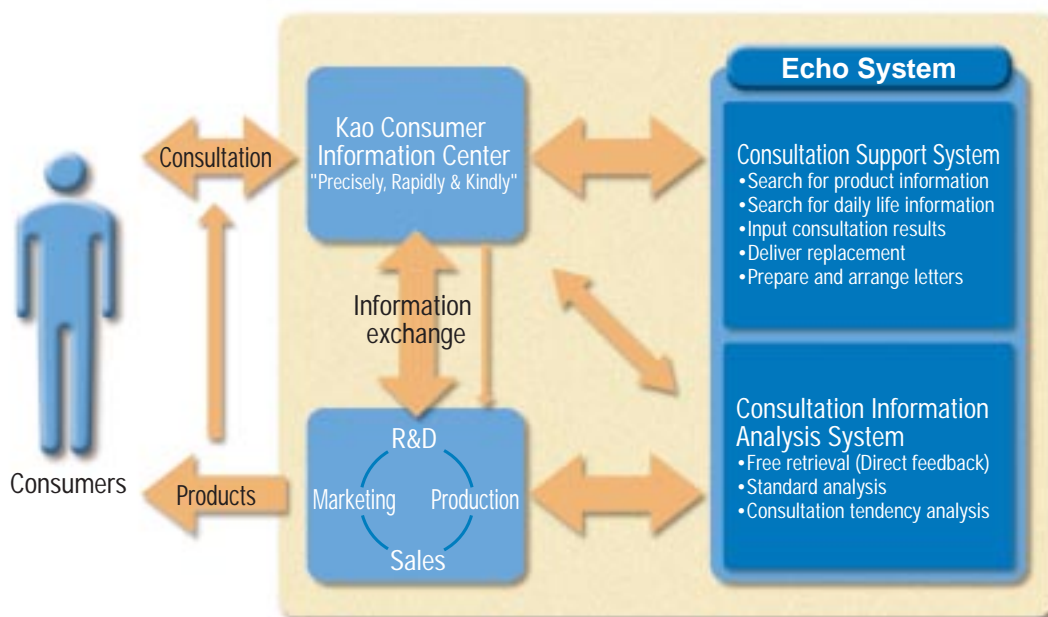
We endeavor to provide superior products that impress and satisfy the needs of our consumers as they express them to us. To sincerely listen to our consumers and reflect their feedback in our corporate activities, we established the Consumer Information Center.

The center currently receives approximately 400 inquiries per day, or about 90,000 inquiries per year.

We respond to these inquiries precisely, rapidly, and kindly, and communicate closely with consumers to reflect such information to product development and improvement.

Answers to frequently asked questions are available through a recording system on the phone or by fax. We have also strengthened our network system and opened the “Kao Product Advisory Bureau” on the Kao Website. This includes “Products Q & A,” “Safety and the Environment,” and “SOS in Daily Life.” (This content is currently available only in Japanese.)

Kao also established the Echo System to respond to inquiries from consumers as well as to reflect consumer needs directly in product development.



4 Provision of Information

(1) Introduce information about environmental measures in audio format (CD) for visually-challenged people

The company issued “Kao Voice Guide for Products and Lifestyle” (CD) to provide information on Kao’s products and daily life to visually-challenged people.

In fiscal 2000, the company added “Kao Measures and Approaches to Reduce Packaging Materials” to the CD in response to consumer’s interest expressed in the questionnaire answered by the CD users.

Comments such as “As this kind of information hardly reaches us, this CD helps me to know about the corporate activities;” “I would like to use refill products more actively.”



Audio information for visually-challenged people in CD format

(2) Introduce environmental measures on the Kao Website

The Kao Website also introduces environmental measures. The site explains details of the company’s measures and approaches to the environment in an easy-to-understand manner, together with the latest topics updated every month. Please see the site at <http://www.kao.co.jp/comp/eco/>. (This content is currently available only in Japanese.)

(3) Provision of information by publication

We publish various brochures and reports on the environment to provide information to consumers and business partners.

These publications are used in staff training.

Environment-related publication (since 1998)

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|---|-------------------------|
| ● “Kao’s Responsible Care 1998 edition” | Published December 1998 |
| ● “Kao’s Responsible Care 1999 edition” | Published November 1999 |
| ● “Environmental and Safety Daily Life Information new edition” | Published December 1999 |
| ● “Realities of Kao’s Environmental Activities” | Published June 2000 |
| ● “Environment, Safety and Health Report 2000” | Published February 2001 |
| ● “Environment, Safety and Health Report 2001” (this report) | Published November 2001 |

Discharge Amount by Plant

Wakayama Plant (Wakayama-shi, Wakayama)

Description of business

Production of laundry detergent, fabric softener, bleach, dishwashing detergent, shampoo & conditioner, soap, toothpaste, surfactant, fatty chemical products; fundamental research and research for commercialization

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	288,464	301,037	298,104	292,827	252,267
Waste disposal	11,268	10,167	8,111	8,070	9,644
Final disposal for landfill	4,122	3,807	3,456	2,824	3,009
SO _x emission	36	29	33	35	27
NO _x emission	338	384	400	352	286
COD emission	62.7	58.9	63.0	65.6	66.9

Tokyo Plant (Sumida-ku, Tokyo)

Description of business

Production of cosmetics; research for commercialization

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	12,401	12,734	13,035	13,453	12,192
Waste disposal	1,398	1,459	1,421	1,384	2,141
Final disposal for landfill	134	100	100	651	161
SO _x emission	0	0	0	0	0
NO _x emission	0.2	0.4	0.4	0.4	0.3
COD emission	0.6	0.8	0.5	0.5	0.3

Sakata Plant (Sakata-shi, Yamagata)

Description of business

Production of laundry detergent, fabric softener, bleach, bath additive

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	24,024	22,990	23,500	22,829	21,615
Waste disposal	1,677	2,983	3,402	2,900	1,860
Final disposal for landfill	227	224	359	208	258
SO _x emission	48	49	51	51	43
NO _x emission	44	43	43	37	40
COD emission	1.0	1.0	2.0	2.0	1.0

Kawasaki Plant (Kawasaki-shi, Kanagawa)

Description of business

Production of laundry detergent, fabric softener, bleach, dishwashing detergent, household cleaning detergent, shampoo & conditioner, body care products

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	52,316	53,511	52,257	61,923	64,086
Waste disposal	2,075	1,731	1,979	2,655	4,560
Final disposal for landfill	165	135	50	0	132
SO _x emission	0	0	0	0	0
NO _x emission	23	22	18	19	11
COD emission	3.2	3.1	2.4	3.5	3.3

Tochigi Plant (Haga-gun, Tochigi)

Description of business

Production of disposable diapers, sanitary napkins, paper products for cleaning, aroma chemical; fundamental research and research for commercialization

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	54,963	56,104	58,458	54,292	54,296
Waste disposal	4,241	4,376	5,570	3,998	3,902
Final disposal for landfill	851	677	619	526	256
SO _x emission	5	6	6	8	9
NO _x emission	195	268	366	319	300
COD emission	0.3	0.4	0.4	0.3	0.2

Kashima Plant (Kashima-gun, Ibaraki)

Description of business

Production of healthy cooking oil, cooking oil, fatty chemical products

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	97,849	99,176	100,753	108,735	109,080
Waste disposal	5,213	5,306	4,575	4,425	3,734
Final disposal for landfill	134	74	101	63	89
SO _x emission	7	5	6	12	14
NO _x emission	50	52	59	71	92
COD emission	19.0	17.7	17.4	15.2	16.5

Toyohashi Plant (Toyohashi-shi, Aichi)

Description of business

Production of hair color, men's cosmetics, hair care products, Nivea-Kao products, foundry binder resins

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	8,965	9,134	9,746	9,343	9,233
Waste disposal	1,874	2,873	5,266	4,237	2,691
Final disposal for landfill	255	288	535	128	404
SO _x emission	2	2	1	1	1
NO _x emission	39	37	46	37	33
COD emission	0	0	0	0	0

Ehime Sanitary Products (Saijo-shi, Ehime)

Description of business

Production of disposable diapers, sanitary napkins, paper products for cleaning

Classification (Unit : tons)	FY				
	1996	1997	1998	1999	2000
CO ₂ emission	26,660	26,382	25,938	25,498	25,355
Waste disposal	3,042	2,575	2,057	1,384	1,225
Final disposal for landfill	281	254	218	180	155
SO _x emission	3	3	4	5	5
NO _x emission	145	144	128	156	152
COD emission	0	0	0	0	0



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