

Environment, Safety and Health Report 2003

— Kao's Responsible Care —



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Table of Contents

Company Outline.....	4
Fulfillment of Social Responsibility	6
Kao's Approach to Environmental Responsibility	7
Overview of Fiscal 2002 Environmental and Safety Activities	8
Environmental Accounting	10
Environmental Management	
Philosophy and Policies Regarding the Environment, Safety and Health	12
Organization and Framework	13
Operation and Audit	14
Response to International Standards (ISO)	14
Education	15
Response to Emergencies	15
Environmental Conservation Activities	
Substance Flow for Business Activities	16
Research and Development / Product Development	
Confirmation of Safety.....	17
Activities for "3Rs"	18
Reduction of Packaging Materials	20
Display of Packaging Materials and Cosmetic Ingredients Information	21
Research & Development Division Pursuing a Sustainable Society	22
Research for Development of Production Engineering	23
Production	
Trends and Breakdown of Capital Investment in Environmental Measures	24
Amount of Energy Consumed	24
Amount of Water Consumed	25
Amount of Greenhouse Gas Emitted	25
Quantities of Emissions Contributing to Air Pollution	26
Quantities of Emissions Contributing to Water Pollution	26
Waste	27
Soil Pollution	28
Compliance with Laws and Bylaws	28
Distribution	
Transportation and Exhaust Volume	29
Management of Chemical Substances	
Emission Levels of Substances subject to PRTR Law	30
Management of Safety Information on Chemical Products	31
International Contribution to Summarize the Safety Information of Chemical Substances	32
Activities for Occupational Safety and Disaster Prevention	
Occupational Safety and Health Management System	33
Performance of Activities	33
Exchanges with Society	
Activities to Foster a Natural Environment	34
Exchanges with the Local Community	35
Communication	37
Data of Environmental Burden Loaded by Plant	38
Written Opinions for Verification	40
Terms Used in the Environment, Safety and Health Report 2003	42

Company Outline (as of March 31, 2003)

Corporate Name: Kao Corporation

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

URL: <http://www.kao.co.jp/e/>

Founding date: June 1887

Company registration: May 1940

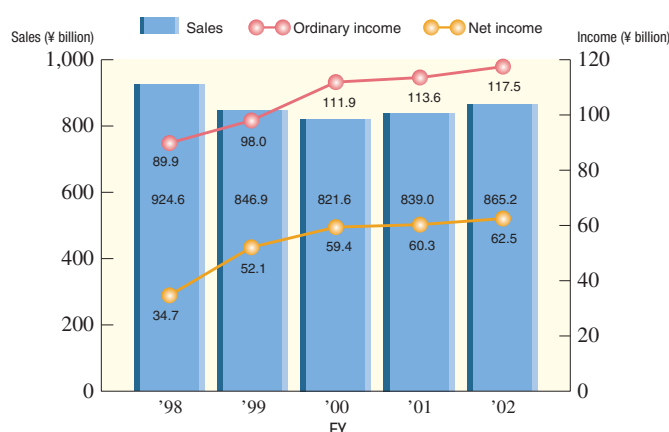
Capital: ¥85.4 billion

Employees: 5,717

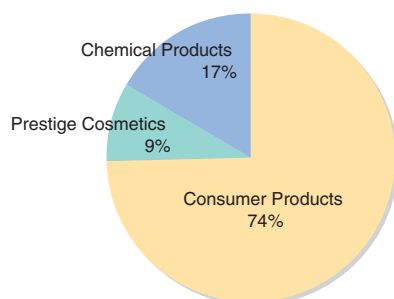
(5,744 as of March 31, 2002, 5,747 as of March 31, 2001)

Sales and Income

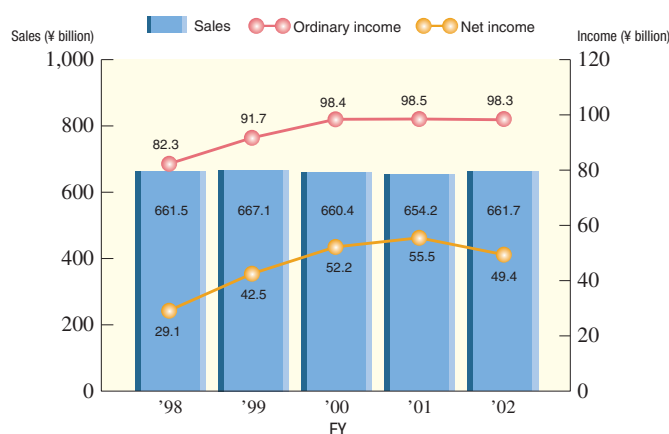
Consolidated sales and income



Share of consolidated sales in FY 2002



Nonconsolidated sales and income



Description of Business:

Manufacture, marketing and sales of consumer products, prestige cosmetics and chemical products

● Consumer products

Personal Care: soap, body care products, shampoo/conditioner, hair color, etc.

Fabric and Home Care: laundry detergents, fabric softeners, dishwashing detergents, household cleaners, etc.

Feminine and Baby Care: sanitary napkins, disposable diapers, incontinence products, etc.

Food Products: healthy cooking oils, cooking oils, dressings, seasoning for salad, etc.

● Prestige Cosmetics

Facial cleansers, facial care, special care, makeup foundation, color cosmetics, etc.

● Chemical Products

Fatty acids, fatty alcohols, fatty amines, concrete additives, de-inking agents, etc.

Operations in Japan

● Offices

Kayabacho Head Office (Chuo-ku, Tokyo)

Osaka Office (Nishi-ku, Osaka-shi, Osaka)

Sumida Office (Sumida-ku, Tokyo)

● Plants

Sakata Plant (Sakata-shi, Yamagata)

Kashima Plant (Kashima-gun, Ibaraki)

Tochigi Plant (Haga-gun, Tochigi)

Tokyo Plant (Sumida-ku, Tokyo)

Kawasaki Plant (Kawasaki-shi, Kanagawa)

Toyohashi Plant (Toyohashi-shi, Aichi)

Wakayama Plant (Wakayama-shi, Wakayama)

Ehime Sanitary Products Company, Limited

(Saijo-shi, Ehime)

(Although Ehime Sanitary Products is not a part of Kao Corporation, it is regarded as Kao's plant in this report, because it only produces Kao products.)

● Research Laboratories

Tochigi Research Laboratories (Haga-gun, Tochigi)

Tokyo Research Laboratories (Sumida-ku, Tokyo)

Wakayama Research Laboratories (Wakayama-shi, Wakayama)

(Product items produced by each plant are specified in "Data of Environmental Burden Loaded by Plant" on pages 38 to 39.)

Basic Management Policy

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 trust of their customers in the company's core fields of cleanliness, beauty and health and in the core field of chemicals. We recognize that through sustainable and profitable growth, our consistent efforts to heighten corporate values increase shareholders' interest.

Changes in Management and Operation

(1) Reorganization of management system

Based on the resolutions of the Shareholders' Meeting in June 2002, the company has appointed two outside directors in order to strengthen the supervisory functions of the board of directors. To further activate such functions, the membership of the board of directors has been reduced from 18 to 13. To separate managerial supervision and business operations, the company has introduced the executive officer system. By transferring considerable responsibility and authority to the executive officers, the company has expedited decision-making and business execution.

(2) M&A activity and establishment of companies overseas

- July 2002: Established wholly owned Kao (China) Holding Co., Ltd. in Shanghai, China
- September 2002: Acquired U.S. premium hair care marketer John Frieda Professional Hair Care, Inc.
- October 2002: Established Kao Transfar (Hangzhou) Co., Ltd. in China, which began production and sales of consumer products in December 2002.

Issues

- (1) Maintain and expand market share of core brands
- (2) Develop new products that create new market segments
- (3) Create and develop new business segments
- (4) Expand and strengthen overseas businesses

The company has established a "Compliance Committee" to regularly observe legal compliance, fairness and ethics of the company's business activities. We think that further improvements to our system in regard to internal control and compliance is an issue of great importance.

Overview of this Year's Report

- **Workplaces covered:** Places of business in Japan included in the company outline
- **Fiscal year covered:** Fiscal 2002 (from April 1, 2002 to March 31, 2003)
- **Date of publication:** September 2003
- **Next projected publication:** Between June and July 2004
- **Scope of activities covered:** The report covers environmental conservation, occupational safety and disaster prevention efforts related to business activities specified in the company outline. Figures related to environmental burden, occupational safety and disaster prevention are a compilation of figures from plants and research laboratories.
Environmental accounting includes the performance of Kao and its four Group companies in Japan, which are fully consolidated on a financial basis.

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For the address and telephone number of each plant, please refer to "Data of Environmental Burden Loaded by Plant" on pages 38 to 39. While the subject contents covered in this report are basically the same as those in last year's report, we have tried to give more complete information according to the Environmental Report Guideline (2000 edition) issued by the Japanese Ministry of the Environment.

Fulfillment of Social Responsibility

In fiscal 2002, we realized there were holes in Japan's fundamental energy supply, recording concerns about securing the oil supply, in response to the Iraqi war and the suspension of nuclear power plant operations for thorough inspections, upon discovery of cracks at a number of plants. On the other hand, we also saw the momentum toward the firm securing of resources for the future and technological developments for environmental conservation through the development of new energy resources and other measures.

In the extremely severe business environment of recent years, the future of the economy remains uncertain. Under such circumstances, companies' social functions and responsibilities are in question.

Each individual company plays a role in society. Specifically, companies are required to contribute directly or indirectly to the achievement of a better quality of life for consumers and the enrichment of society through provision of their products and services. In other words, when a company is not seen in a positive light by society, it is forced to make a sharp exit from the market according to the rules of a market-oriented economy.

Parallely, regardless of superior products or services, if a company behaves unethically and/or overloads the burden on the environment, it is not living up to its social responsibilities.

Keeping our obligations at the forefront of our mind, we strive to achieve outstanding performance both in terms of business activities and environmental conservation, upholding our philosophy to develop and provide useful products that put minimal burden on the environment throughout the entire product life cycle, from production to disposal. The company also takes all possible measures to ensure product safety.

Together with these measures, we also proactively promote resource and energy savings in the field of industrial-use products and product development to promote environmental conservation.

People are increasingly aware that companies can achieve healthy growth only in a healthy society. Furthermore, a company can only exist in a society that is surrounded by nature. To contribute to communities and to foster a natural environment, Kao consistently takes initiatives to support an extensive range of activities related to wildlife conservation, arts and culture.

Under these policies, I, as Kao's President and Chief Executive Officer, will take the lead in contributing to the development of a new social system to achieve a sustainable society for the coming generations.

It is our expressed wish that this report be beneficial in deepening your understanding of our environmental conservation activities based on the philosophy described above.

August 2003



Takuya Goto

Takuya Goto
President and CEO

Kao's Approach to Environmental Responsibility

Environmental issues related to business activities include countermeasures against global warming, and reduction of waste disposal, through strict management of chemical substances. We should review regulations and measures on a national and community level, as well as on a global level. We need to have a common understanding about our proposition to establish a sustainable society, as advocated in the report, "Our Common Future", issued by the World Commission on Environment and Development (WCED). According to the features of our business domain mentioned below, we take initiatives to set goals and improve performance in our production activities toward achievement of these goals.

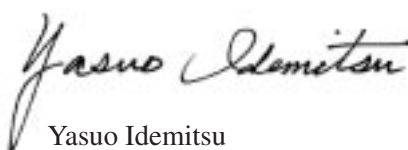
Since the majority of our products are daily-use consumer products, their utilization generates waste materials which are released into the environment. Much of the waste is disposed as sewage, while packaging is generally discarded as domestic garbage. Aware that consumption of our products places a burden on the environment, we recognize that one of our most worthwhile tasks is to develop products with minimal impact on the environment. This environmental policy guides our work through every stage of the product life cycle – from procurement of raw materials, to production, distribution, consumption and disposal.

The other main feature of our environmental policy is related to the fact that we are also a manufacturer of chemical products as well as daily-use consumer products. Kao utilizes and produces a large number of chemicals. Here, we have adopted the philosophy and guidance of the Japan Responsible Care Council, of which we are a member, and we aggressively develop our own environmental conservation programs in such areas as energy savings. We also disclose full and accurate information in accordance with the Pollutant Release and Transfer Register (PRTR) law and strictly observe all other bylaws.

This report covers the company's environmental activities in fiscal 2002 (from April 1, 2002 to March 31, 2003). Our major activities in recent years have included further promotion of resource and energy savings in the production process, and further reduction of waste disposal and discharge of substances subject to PRTR and packaging, which become waste after consumption of products. In addition, from the viewpoint that a favorable partnership with consumers is essential, we proactively provide useful and updated information to the public through our website, and conduct activities to contribute to society.

While pursuing steady advancement in these programs, the company will aggressively engage in other such activities as utilizing Life Cycle Assessment (LCA) and "green purchasing" plans. Through these efforts, we will weave environmental conservation into the fabric of our corporate mission which focuses on contributing to the enrichment of people's lives and creating innovative products of excellent value.

We hope that this report will enable you to understand Kao's environmental activities. Readers' frank opinions and suggestions on this subject are always more than welcome.

A handwritten signature in black ink that reads "Yasuo Idemitsu". The signature is fluid and cursive, written in a professional style.

Yasuo Idemitsu
Executive Vice President, Global Environment & Safety

August 2003

Overview of Fiscal 2002 Environmental and Safety Activities

Kao's environmental and safety activities are based on the Kao Management Principles, which incorporate the company's core corporate activities, in conformity with the philosophy of Responsible Care (RC) activities promoted by the Japan Responsible Care Council (JRCC). RC activities include "environmental conservation," "occupational safety and health," "process safety and disaster prevention," "safety management of chemical substances" and "communication."

1. Environmental Activities

(1) Management system

RC activities are expanding to consolidated Group companies in Japan in accordance with the corporate philosophy and standard practice. We are transferring our database system for RC activities from a compilation system in Excel to a customized automated compilation system. To expand the scope of RC activities and introduce management systems in consolidated Group companies in Japan and production bases overseas, the company aims to complete implementation of the systems in Japan within fiscal 2003 and globally within fiscal 2004.

By successfully communicating the "Corporate Philosophy" and "Policies Regarding the Environment, Safety and Health," the company strives to expand its global environmental activities throughout the entire Group worldwide.

(2) Product development and environmental burden reduction

With resource savings in mind at the packaging design stage, the company strives to reduce the amount of materials used, by launching compact and concentrated products and refill/replacement products, resulting in the reduction of packaging materials used by approximately 4,000 tons year-on-year. In terms of ingredients used in products, the company also positions the compacting and concentration of products as a means of resource saving. (See page 20 for details.)

We have commissioned a company to recycle the packaging of our products according to the Container and Packaging Recycling Law, and such consignment costs were approximately 1.1 billion yen. Moreover, we have almost completed the process of displaying packaging material identification marks on all products. We consistently make efforts to indicate the specific plastic materials used as much as possible. (See page 21 for details.)

(3) Energy saving and reduction of CO₂ emission

In line with the rise in production, the company's energy consumption increased by approximately 1,000 KL (converted to crude oil) but the unit value added index decreased by 1.9 points year-on-year.

CO₂ emission was reduced by 2,000 tons year-on-year to 6.2% of the level in fiscal 1990. Major contributing factors were 1) the changeover of fuel to natural gas, 2) the reduction of energy consumption based on energy saving activities, and 3) the introduction of co-generation facilities. (See page 24 for details.)

Receiving support from ANRE* in fiscal 2003, we will implement plans for the introduction of co-generation facilities, which utilize city gas, in the Kawasaki Plant and for the changeover of fuels for boilers from heavy oil to city gas. These effects will begin to be reflected in data from fiscal 2003. (See page 24 for details.) The rate of self-generated power was approximately 50% at the end of fiscal 2002, which will increase to approximately 70% when these plans are complete.

* ANRE: Agency for Natural Resource Energy

(4) Reduction of waste

Although we generated unexpected waste in fiscal 2001, we have solved such issues. Despite an increase in waste generated for testing new products, the company reduced amounts of both waste generated and final disposal from the levels of the previous fiscal year due to improvements in recycling rates. (See page 27 for details.)

Zero emission activities at Ehime Sanitary Products resulted in final disposal at approximately 4% of total waste generated. These activities are consistently being conducted to achieve the goal of zero emission in fiscal 2003.

(5) PRTR

The company has set as its goal the reduction of emission of substances subject to the PRTR law, at a maximum of 1 ton per year for each plant. All data collected at the end of fiscal 2002, except for toluene, cleared the initial targets. We continue to consider alternative solvents in replacement of toluene, aiming to complete replacement within the current fiscal year. (See page 30 for details.)

Due to its superior comprehensive environmental activities, the Wakayama Plant was awarded the "Excellent Advanced Plant Award" in fiscal 2002 by Nihon Keizai Shimbun, Inc., a leading Japanese economic newspaper company.



2. Occupational Safety and Health

To eliminate labor accidents and further improve safety standards, the company has established a unique management system to enhance occupational safety and health. Specifically, the company has introduced and integrated a risk assessment system for machines and equipment, and a safety assessment system for facilities for the production of chemical products to new, improved and existing facilities. In the Production & Engineering Division and Research & Development Division, labor accidents which tend to be caused by contact with machinery were reduced, but minor accidents such as slipping and falling which do not result in personnel taking leave increased.

In addition to risk assessment for machines and equipment, we take overall countermeasures against minor accidents as important issues and further strive to eliminate labor accidents. (See page 33 for details.)

3. Disaster Prevention Activities

There have been no major cases of fires or explosions in recent years. Based on the assumption of a large earthquake in Tokai or Tonankai, or an inland earthquake in the Kanto district in Japan, we have mostly completed our review of building structures and our forecast of potential risks. Aside from emergency drills in each area, the company provided company-wide training on the assumed occurrence of a catastrophic earthquake in the Tokai district. We will continue this kind of training in fiscal 2003.

4. Safety Management of Chemical Substances

As part of our comprehensive management of chemical substances, the company promotes confirmation of the safety of newly developed products, improvements to MSDS (Material Safety Data Sheet) for existing products, construction of an information system related to safety, and laws and bylaws and provision of proper information about usage of this information system. The company currently handles approximately 9,100 kinds of materials (approximately 3,500 kinds of chemical substances), including materials we purchase. We have reviewed the safety data of materials produced by the company since 1995. Including 151 kinds of products that we have newly conducted safety tests on, we completed improvements to the Japanese version of MSDS for 4,137 kinds of products (6,333 kinds of products including US and EU versions) as of the end of fiscal 2002. (See page 31 for details.)

Improvements to safety related to all existing products will be complete by the end of fiscal 2004. The company has developed the Master Index (MI), a new chemical substance identifying code system. This system will enable us to swiftly confirm information about safety, and laws and bylaws concerning materials purchased and consumer products (compounded products). Operation of the system will begin within the first half of fiscal 2003.

In addition to this plan for improvements to safety related to chemical substances in existing products, we have proactively joined six consortiums in the safety inspection program for High Production Volume (HPV) chemicals, which is conducted worldwide. The company also participates as a committee member in the Long-Range Research Initiative (LRI), a group which studies the safety of chemical substances, organized by the Japan Chemical Industry Association, and a project for risk assessment of detergents, carried out by the Japan Soap and Detergent Association. (See page 32 for details.)

5. Communication and Contribution to Society

As a means to communicate with stakeholders, we have prepared Environment, Safety and Health Reports, and an environmental activities section and educational section for children on our website. The number of visitors to the website has increased remarkably.

We have continued to support the “Creating Forests for Everyone” campaign and for Arts and Sciences, conduct touring chemical experiments at elementary schools and provide assistance of a financial and human nature at concerts and exhibitions held by Kao Foundation. (See pages 34 to 36 for details.)



Environmental Accounting

1. Compilation method for fiscal 2002

- (1) Complies with the "Environmental Accounting Guidebook II" issued by the Ministry of Environment.
- (2) Compiles costs for environmental conservation activities (including depreciation allowance), investment and effect.
- (3) Calculates the overall effect of the environmental conservation effects (physical unit) and economic effects (currency unit).
- (4) Does not include deemed effects such as aversion to risk.
- (5) Covers Kao Corporation and 4 subsidiaries in Japan (Kao Hanbai Company, Ltd., Kao Cosmetics Sales Co., Ltd., Ehime Sanitary Products Company, Limited, Kao-Quaker Company, Limited)
- (6) For the period April 1, 2002 to March 31, 2003

2. Results for fiscal 2002

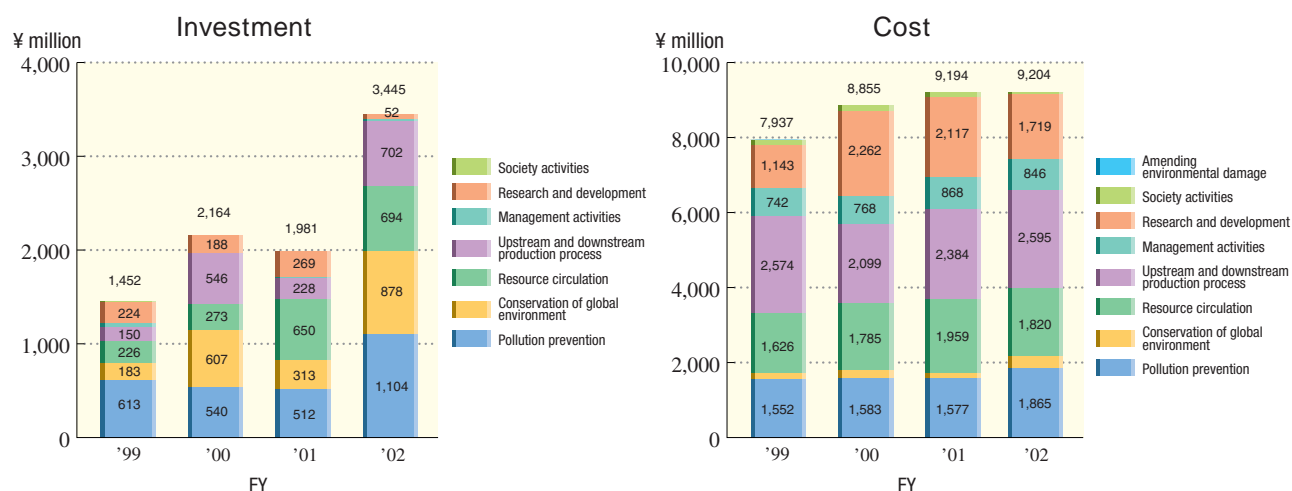
(1) Environmental conservation costs

Environmental conservation costs			(Unit: ¥million)	
Category	Main activities		Investment	Cost *1
Costs by business area			2,676	3,987
Breakdown	① Pollution prevention	Prevention of air and water pollution	1,104	1,865
	② Conservation of the global environment	Energy saving	878	302
	③ Resource circulation	Conservation of resources, processing and disposal of waste	694	1,820
Costs incurred during upstream and downstream production process	Product recycling, packaging recycling, and the manufacture of products in an environmentally responsible manner		702	2,595
Costs of management activities	Obtainment and maintenance of ISO, disclosure of environmental information, compliance with PRTR law, education		16	846
Costs of research and development	Development of products in an environmentally responsible manner		52	1,719
Cost of society activities	Nature conservation in areas surrounding the plants, beautification activities, supporting funds, tree-planting in workplaces		0	58
Costs of amending environment damage				0
Total			3,445	9,204

*1: These costs include depreciation allowances.

- Major investment includes: 1) gas turbine to switch fuel to natural gas at the Wakayama Plant, for energy saving and reduction of CO₂ emission and waste disposal; 2) machinery that prevents powder dust from dispersing in production facilities for detergents in the Kawasaki Plant; 3) an incinerator at the Sakata plant and 4) production facilities for replacing plastic lids for *Attack* laundry detergent with paper lids.
- Major costs include labor costs for research and development, depreciation of facilities to produce products in an environmentally responsible manner, consignment costs for waste disposal, and consignment costs for the recycling of packaging in compliance with the Containers and Packaging Recycling Law.

Trends in environmental conservation costs



For trends of capital investment into environmental measures, please refer to page 24.

(2) Environmental conservation effects

Environmental conservation effects (physical unit)				
Contents	Category	Unit	Increase/decrease*3	
			vs. FY2001	vs. FY1990
Resources used in business activities	Energy consumed (crude oil equivalent)	KL L/¥million*2	+ 860 ▲ 13	▲ 2,220 ▲ 161
	Plastics used for packaging	tons kg/¥million*2	▲ 2,200 ▲ 8	
Environmental burden and waste discharged from business activities	CO ₂ emission	tons kg/¥million*2	▲ 2,318 ▲ 39	▲ 35,318 ▲ 465
	SO _x emission	tons kg/¥million*2	▲ 9 ▲ 0	▲ 41 ▲ 0
	NO _x emission	tons kg/¥million*2	+ 69 + 0	+ 251 + 0
	COD emission	tons kg/¥million*2	▲ 6 ▲ 0	▲ 6 ▲ 0
	Waste generated	tons kg/¥million*2	▲ 13,837 ▲ 32	+ 5,622 ▲ 5
	Final disposal of waste	tons kg/¥million*2	▲ 1,693 ▲ 4	▲ 17,166 ▲ 51
	Substances subject to PRTR released in the air	tons kg/¥million*2	+ 2 + 0	

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

*3: + means increase, ▲ means decrease.

- Environmental conservation effects are expressed by an increase/decrease in absolute amounts as well as a value added unit index. Increase/decrease values are indicated in comparison with values in the previous year (FY2001) and FY1990, the first year the company implemented full-fledged environmental measures.
- Plastics used for packaging, CO₂ emission, waste discharged and final disposal of waste in absolute values were markedly reduced, but energy consumed and NO_x emission in absolute values increased.
- Plastics used for packaging and other items are specified on page 20 and pages 24 to 27 respectively.

Economic effects (currency unit)			(Unit: ¥ million)
Contents		Amount *4	
Proceeds from sales of items with value	Proceeds from sales of items with value and fixed assets	115	
Cost reduction	Cost reduction through energy conservation	226	
	Cost reduction through resource savings	1,447	
	Other cost reduction (e.g. maintenance fees for facilities installed for environmental measures)	330	
Total		2,119	

*4: The amount is the total reduction of costs of items that occurred in fiscal 2002.

- The economic effects are calculated only in terms of sales of items with value and fixed assets, and cost reductions. In other words, economic effects or deemed effects based on the assumption of evading risk are not included.
- The Guidelines issued by the Japanese Ministry of the Environment treat proceeds from sales of items with value and fixed assets as income. However, as calculation of exact income is difficult, the company posts them as proceeds.
- The largest economic effect is cost reduction from resource savings, which includes the lowering of raw material waste, the reduction of materials used, and changes in product composition.
- The figures for each cost reduction item indicate those only for fiscal 2002 without including the amount for multiple fiscal years.

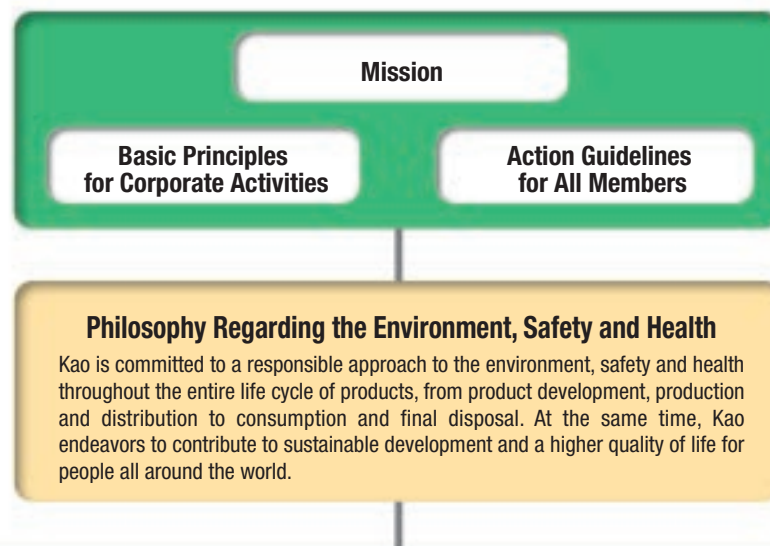
Environmental Management

Philosophy and Policies Regarding the Environment, Safety and Health

Kao's philosophy and policies regarding the environment, safety and health were established in 1995 to define the company's activities concerning these areas, in accordance with the spirit expressed in the Kao Management Principles. Both the environment and safety are inseparably important issues in business activities. Kao conducts activities within the frameworks of "Environmental Conserva-

tion," "Process Safety and Disaster Prevention," "Occupational Safety and Health" and "Chemical and Product Safety," as outlined by the Japan Responsible Care Council (JRCC). The company also strives to disclose information about its activities in relation to the environment and safety and gain trust from its stakeholders.

Kao Management Principles



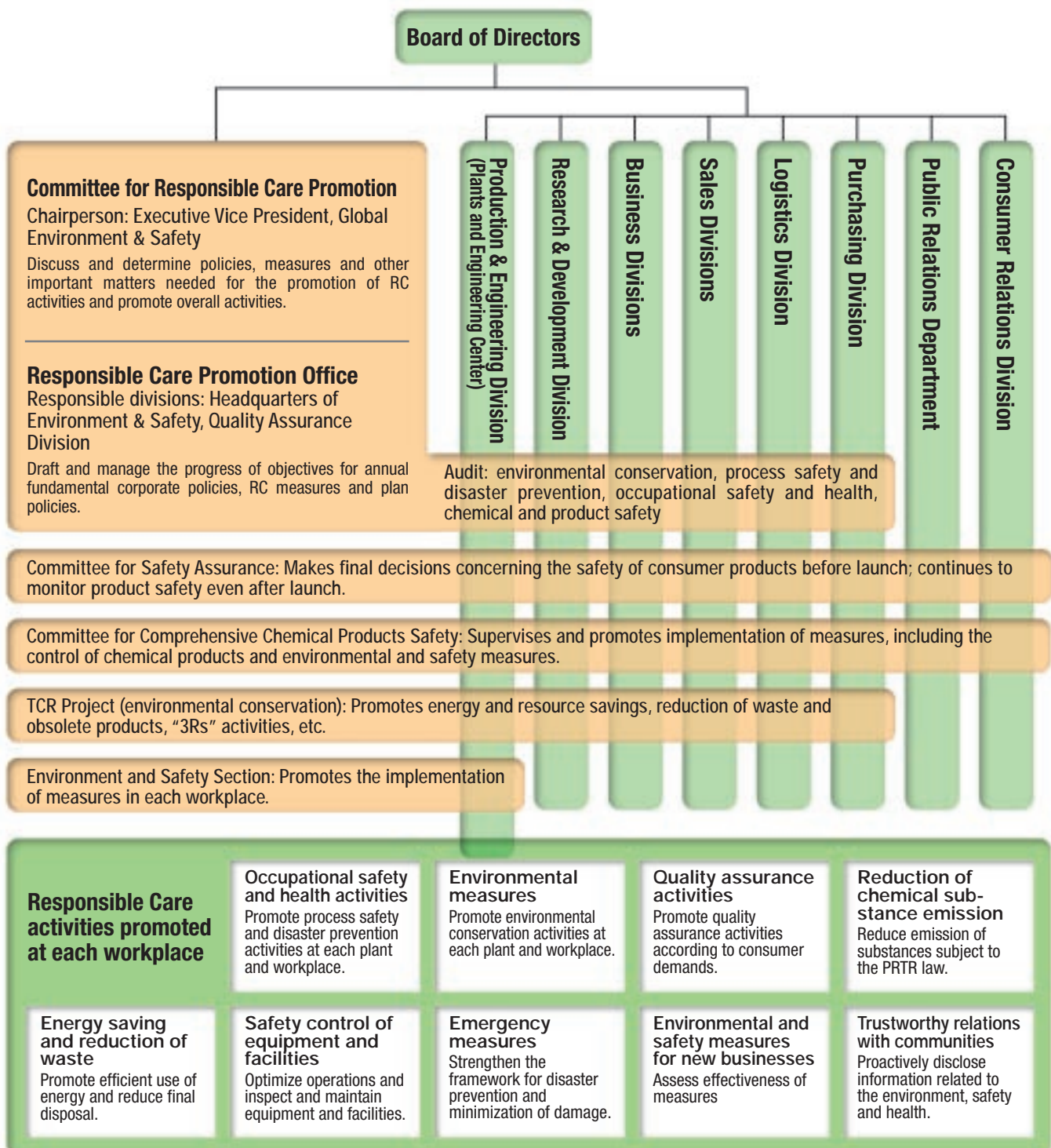
Policies Regarding the Environment, Safety and Health

- 1. Maintain employees' health and safety, and improve operational safety**
Improve the working environment so that employees can work in a healthy and safe environment; maintain safe operations; provide regular training to employees on safe work practices and in preparation for emergencies.
- 2. Develop products with attention to the environment and safety**
Assess environmental and safety aspects throughout the entire lifecycle of the products, from manufacture through disposal, when developing products and technologies; provide products that have a lower environmental burden and ensure safe use for consumers; provide appropriate information, i.e. instructions regarding proper use, caution.
- 3. Save resources and energy and reduce waste**
To protect the global environment, develop technologies at the product design stage, which address the issues of energy and resource saving and the reduction of waste; raise productivity in terms of resources and energy; reduce waste and byproducts; reuse and recycle resources and energy.
- 4. Promote human safety in the community and take a responsible approach to environmental conservation**
Proactively implement environmental measures as a community member to improve safety for people in the community and conserve the environment; solve issues that adversely influence the environment and safety, responsibly and without delay.
- 5. Comply with laws and internal controls**
Comply with relevant laws and bylaws in all business activities; set and follow the company's own code of behavior.
- 6. Provide adequate training**
Consistently promote training on environmental and safety issues to employees; raise each individual's awareness of their personal responsibility, from management to regular employees.
- 7. Conduct evaluation of internal controls**
Conduct regular audits and self-evaluation to continuously improve activities in the PDCA cycle.
- 8. Disclose information and improve credibility in the community**
Proactively disclose environmental and safety policies and data; improve credibility in the community through open, two-way communication.

Organization and Framework

The majority of Kao's products are daily-use consumer products. Therefore, we conduct Responsible Care (RC) activities to reduce environmental burden and ensure security throughout the entire life cycle of products from production to consumption and disposal. Fundamentally each division, for example, the Research & Development Division and the Production & Engineering Division is respon-

sible for the company's environmental and safety activities. However, organizations across divisions, e.g. the "Committee for Responsible Care Promotion" or the "TCR (Total Creative Revolution) Project" promote and check specific activities in accordance with each organizational mission and annual schedule.



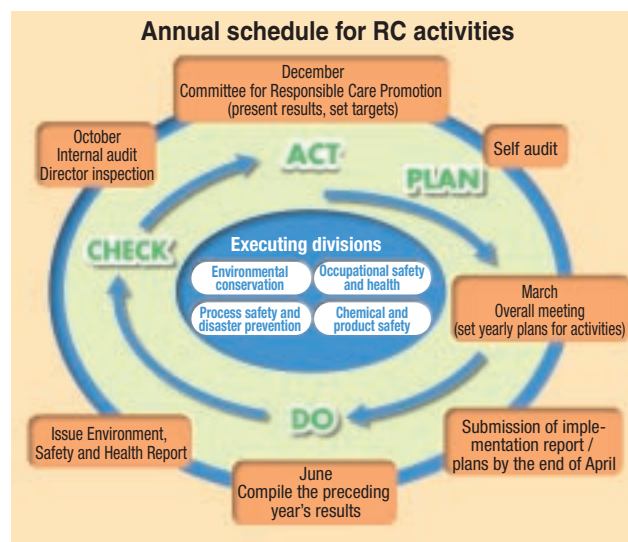
Operation and Audit

RC activities are conducted according to a set annual schedule with the aim of continuously improving the PDCA (Plan, Do, Check and Act) cycle.

To determine the following fiscal year's policies and targets, the management reviews each division's progress and issues based on an internal audit held annually in October, in the annual meeting of the Committee for RC Promotion held in December. Each division thereafter analyzes these policies and targets at a divisional level and performs a self-audit to design and implement a divisional plan.

The internal audit focuses on an evaluation of systems. Evaluation results in each division are seeing signs of improvement year by year. In particular, the Production & Engineering Division, which almost achieved its initial goals in fiscal 2001, has shifted from a system audit to a performance audit.

Director inspection comprehensively covers issues related to occupational safety and health and environmental conservation. Facilities for high pressure gas were inspected by a group consisting of a director responsible for process safety, a plant manager and other members from relevant sections.



RC internal audit results for fiscal 2002

Contents	Performance audit	System audit		
	Production & Engineering Div.	R&D Div.	Business Div.	Corporate Div.
No. of divisions audited	8	3	6	2
No. of questions	209	64	166	34
No. of categories with superior results	21	-	-	-
No. of items requiring improvement	7	1	0	3
No. of items requiring continuous observation	61	10	12	3
Average evaluation score (maximum of 5)	3.77	4.72	4.63	4.03

Response to International Standards (ISO)

In response to the promotion of global businesses, the company has promoted the attainment of the ISO 14000 series, an international standard for environmental management systems, and the ISO 9000 series, an international standard for quality management systems. The company positions these standards as its framework upon which to proactively and consistently strive to develop high quality products that load minimal burden on the environment.

All business locations with plants in Japan achieved ISO 14001 certification by April 2001, and all plants attained ISO 9000 series certification by November 2001. The company is

steadily adding ISO 9002 certification to its currently held ISO 9001 certification for each relevant product and business division. The company also promotes attainment of certifications at the Group plants overseas.

There is movement throughout industry toward integrating and operating the OHSAS 18000 series, which is concerned with occupational safety and health, with the existing ISO series. Aiming for zero labor accidents, the company has begun to implement the full-fledged Occupational Safety and Health Management System (OSHMS), since 2000.

Status of ISO attainment (as of March 2003)

◆ ISO 14001 (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 Office, Tokyo Plant/Research Laboratories April 2000
- Toyohashi Plant December 2000
- Kawasaki Plant March 2001
- Sakata Plant April 2001

◆ ISO 9001 (Date of attainment)

- Kawasaki Plant September 2001
- Sumida Office, Prestige Cosmetics Business November 2001
- Tochigi Plant November 2001
- Toyohashi Plant November 2001
- Sakata Plant April 2002
- Wakayama Plant, Consumer Products Div., Personal Care July 2002
- Ehime Sanitary Products January 2003

◆ ISO 9002 (Date of attainment)

- Wakayama Plant Chemical Products and Food Products Production Center May 1997
- Consumer Product Division, Fabric & Home Care February 2000
- Kashima Plant Chemical Products and Food Production Center June 2000

Education

The company consistently educates its employees and staff of cooperating companies about the environment, safety and health in line with the ISO management system and RC activities. As a consequence, their awareness concerning the environment, safety and health has steadily risen.

Generally, appointed personnel in each division conduct RC education and promotion. The Production & Engineering Division has established a system where personnel responsible for environment and safety at each plant educate other employees and promote RC activities. However, in the Research & Development Division, the Business Divisions and Group companies that engage in sales and other relevant businesses, these systems are not complete yet. For this reason, the RC Promotion Office held seven meetings in fiscal 2002 to explain JRCC materials, the Environment, Safety and Health Report and legal revisions.

In recent years, the efficient transfer of technologies and expertise from Japan, overseas, and independency at overseas production bases has been much sought-after. To train highly specialized engineers in Japan and overseas, the company held a course that covered the field of high temperature and high pressure; eight employees took the course in June 2002. The objectives of the course are: 1) to hand technology down to trainees with an eye to engender-

ing a global outlook in their development of products which will consequently lead to the development of the entire Kao Group businesses, 2) to improve overseas engineers' skill level and 3) to provide networking opportunities for engineers.

To provide training for chemical engineers, an "Engineering School" was held, attended by nine employees from Thailand, Indonesia, Shanghai, Taiwan and Japan, in March 2003. The company also plans to open a course with orientation and basic training in Japan, supplemented by tactical exercises based on lectures and actual data from overseas plants. This course will provide 30 days of training over a period of four months until September 2003.

Other programs include lectures on mechanical engineering for the purpose of training mechanical engineers and leadership skills training for overseas operators at supervisory level (scheduled to begin in May 2003).

In response to the global development of Kao's businesses, the company strives to complete training programs to nurture global human capital, especially in the Production & Engineering Division.

Response to Emergencies

The company sets as the first item in its policies regarding the environment, safety and health, to "maintain employees' health and safety and improve operational safety." Specifically, the company is striving to improve working environments so that employees can work in safe and healthy conditions; to maintain safe operations; and, to provide regular training to employees regarding safe working practices and in preparation for emergencies.

At each workplace, the company provides emergency drills for reporting and evacuation procedures more than once a year, in preparation of labor accidents (including car accidents during the commute to/from the workplace), industrial illness, large-scale food poisoning, accidents related to fires or oil spillages, accidents during transportation of products, and accidents caused by such natural disasters as earthquakes, typhoons and floods.

None of our workplaces experienced accidents related to fires or oil spillages, accidents during the transportation of products or accidents at facilities caused by such natural disasters as earthquakes, typhoons and floods in fiscal 2002.

Emergency drills for disaster prevention implemented in fiscal 2002

		■ Daytime training ■ Nighttime training											
	Contents	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Company-wide	Emergency drill for reporting procedures (swift information exchange between HQ and each division) * On assumption of an earthquake in the Tokai District in fiscal 2002												
All plants	Emergency drill for reporting procedures (swift information exchange between HQ and each plant) * On assumption of a nighttime earthquake in the Nankai area in fiscal 2002												
Each plant	Wakayama												
	Tokyo												
	Sakata												
	Kawasaki												
	Tochigi												
	Kashima												
	Toyohashi												
	Ehime												

Environmental Conservation Activities

Substance Flow for Business Activities

Substance flow for Kao's business activities in fiscal 2002 is indicated in the chart. From this report onward, we will review each indicator in the substance flow and reselect from a core indices viewpoint. Substance flow in fiscal 2002 is shown in the chart below from the aspects of input and output of substances.

Energy consumption increased in line with an increase in volume of products produced. However, the unit energy index improved by 1.9 points year-on-year due to increased productivity.

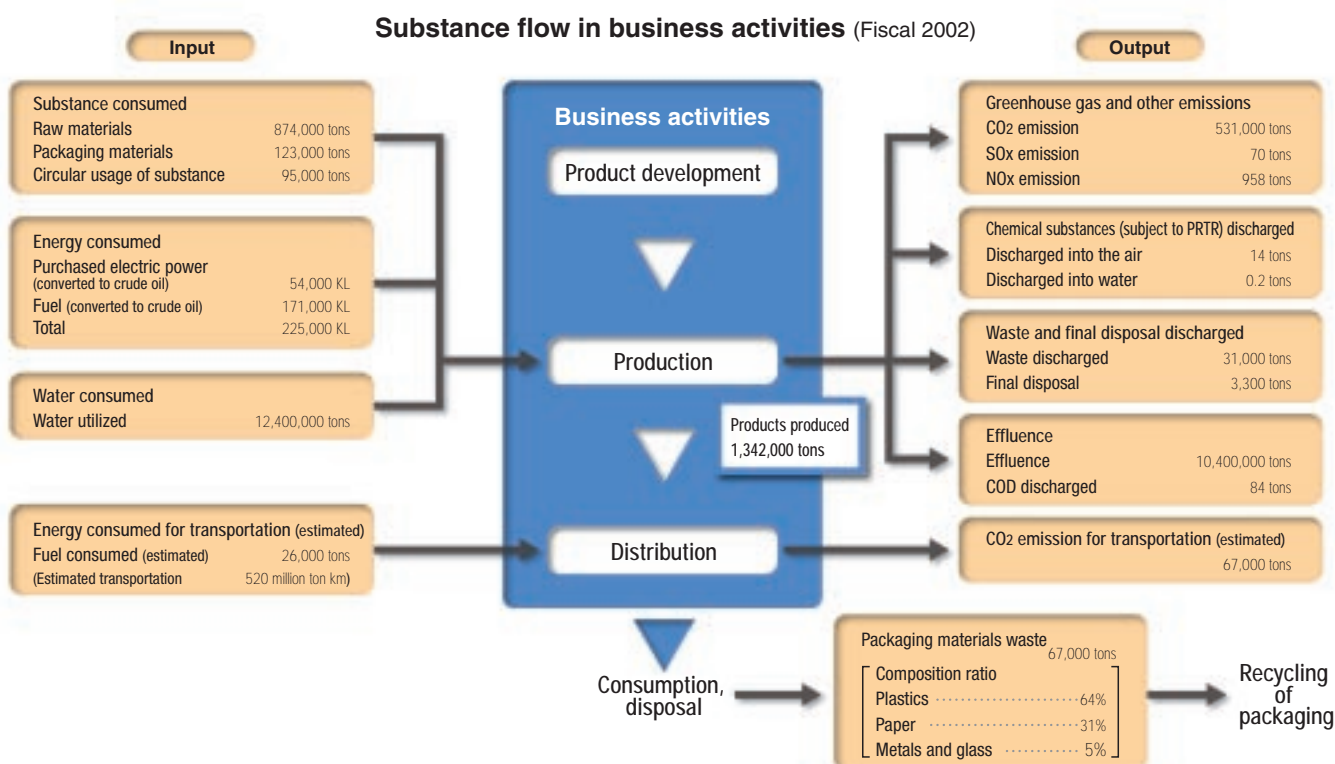
Emissions of greenhouse effect gas (CO₂) were reduced by 2,000 tons year-on-year to 6.2% the level in fiscal 1990. The Sakata Plant has installed an incinerator, which enables internal thermal recycling, resulting in extensive reduction of waste discharged. Final disposal was reduced by 1,700 tons year-on-year to 3,300 tons. A major issue in achieving further reductions is the recycling of ash generated from incineration.

Despite an increase in the volume of products produced, the amount of packaging disposed fell by approximately 4% year-on-year due to the effects of "3Rs" activities.

In our business activities, we strive to raise efficiency levels of resources and energy usage, and reduce the discharge of substances that load a burden on the environment with an eye to their environmental impact. We consistently strive for the efficient use of 'input' energy or materials, and the reduction of 'output' materials that are released into the environment.

Meanings and definitions of each indicator

Raw materials	Volumes of raw materials directly used for product manufacturing (excluding materials for containers, packages, fuel, etc.)
Packaging materials consumed	Total volume of containers, packages and cardboard boxes used for the company's products sold
Volume of circular substance usage	Volume of waste generated by production activities which are then recycled by the company
Energy consumed (purchased electric power)	Amount of electric power consumed in production activities (excluding that consumed in administrative work and R&D activities, which is not directly related to production)
Energy consumed (fuel)	Volume of fuel consumed in production activities (excluding that consumed in administrative work and R&D activities, which is not directly related to production, and heat recovered as a result of thermal recycling)
Water consumed	Total volume of water utilized
Energy consumed for transportation	Volume of crude oil consumed estimated upon the projected volume of consumer products delivered to distribution centers (including direct delivery to retailers)
Greenhouse gas (CO ₂) emissions	Volume of CO ₂ emitted in business activities
Other exhaust emissions (SO _x emission)	Total volume of SO _x emitted from facilities that generate smoke and soot
Other exhaust emissions (NO _x emission)	Total volume of NO _x emitted from facilities that generate smoke and soot
Chemical substances discharged	Volume of substances subject to PRTR which are discharged into the air and water
Total waste discharged	Included in the volume of waste generated in production activities, the volume of waste which is sold or consigned for disposal as waste or recyclable resources, and final disposal or landfill
Effluence	Total volume of effluence discharged by production facilities
COD discharged	Volume of chemical oxygen demand (COD) discharged, calculated by multiplying effluence volume by COD concentration
CO ₂ emission for transportation	Amount of CO ₂ emission estimated upon projected volume of products delivered to distribution centers (including direct delivery to retailers)
Waste of packaging materials	Volume of containers, packaging materials used for products sold (excluding cardboard boxes)



Research and Development / Product Development

● Confirmation of Safety

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

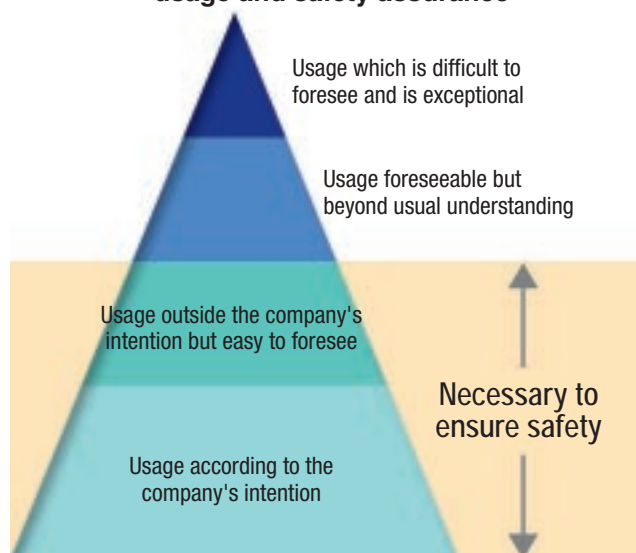
(1) Basic approach to safety assessment

- Assess and ensure the safety of both raw materials (constituents compounded) and final products
- Assure the safety of human health and the environment in relation to products, under ordinary use conditions and with foreseeable possible misuse
- Follow the company’s approach to risk assessment. In other words, the company identifies the ordinary usage and use amount of products to study the impact level or hazard*¹ of products on human health and the environment. Then we assess the risk*² of the products and determine whether such risk is acceptable for human health and the environment.

*1 Hazard: The nature of potential hazards (with negative impact)

*2 Risk: Rate at which potential hazards occur

Scope of responsibility for product usage and safety assurance



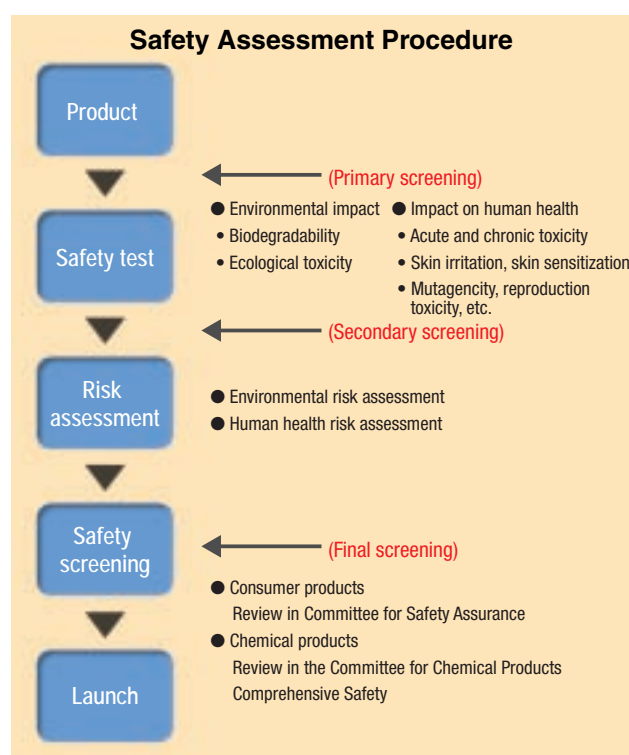
(2) Raw materials selection standards

The company independently limits its use of certain raw materials in addition to its use of chemical substances regulated by law. With regard to the manufacture of consumer products, the “Kao Safety Assessment Standards for Products and Materials” specifies 13 prohibited substances and 68 limited-use substances.

Kao has designated 479 substances as subject to RC activities, including 354 Class I chemicals subject to the PRTR law, 55 substances whose use as a raw material in products is prohibited in principle and 70 substances whose use in products or in the manufacturing process is subject to restrictions/controls.

(3) Safety assessment procedure

Safety assessments for consumer products and chemical products are conducted according to the following procedures:



Consumer Products

- After confirming that products’ components match company standards (the primary screening), we then classify the products into three categories to assess safety, based on whether or not they contain new raw materials or were previously used.
- After a secondary screening based on lab-level safety tests of materials and products, the risk is assessed through field testing at a practical level.
- The Committee for Safety Assurance confers and assures product safety before the manufacture and launch of products. Safety is tracked even after products are released (voluntary post marketing survey), and safety is reassessed as necessary. Representatives of the Consumer Information Center, Kao Lifestyle Research Institute, Research & Develop-

ment Division, and Product Quality Management Division are regular members of the Committee.

Chemical Products

- After the safety assessment and check for compliance with laws, 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, and International Chemical Department in the Chemical Business Division as well as Affiliates.

Activities for "3Rs" (Reduce, Reuse, Recycle)

Kao's environmental activities concerning product development and technological development are based on the "3Rs" – reduction of raw materials used, reuse of containers and their functional parts, and use of recycled materials. Further, Kao promotes the concentration and compacting of products as well as the use of refill/replacement products.

(1) Concentration and compacting of products

The company currently supplies 15 compact-type products, as of March 2003. The percentage of compact-type products on a unit base in fiscal 2002 was 100% for powder laundry detergents, 87% for liquid laundry detergent, 84% for fabric softeners and 84% for dishwashing detergents.

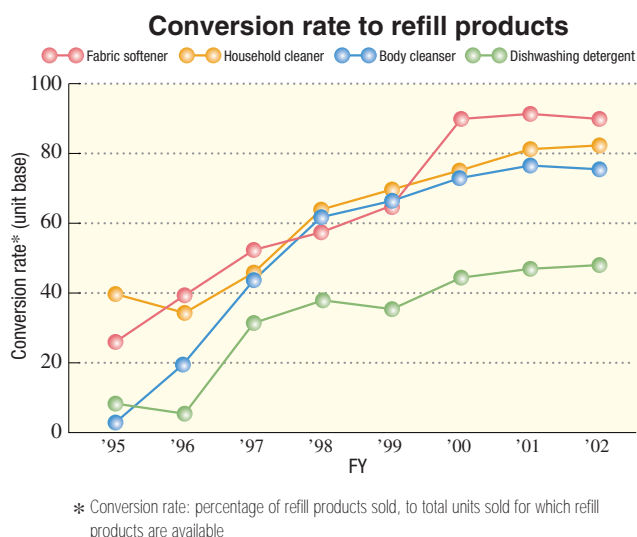
Compact-type products (as of March 2003)

Classification	Total No. of items	Compact-type products		
		No. of items	Rate* (%)	Product names
Powder laundry detergent	3	3	100	<i>Attack</i> , <i>Attack Sheet-type</i> , <i>New Beads</i>
Liquid laundry detergent	4	2	87	<i>Attack liquid</i> , <i>Emal delicate wash</i>
Fabric softener	6	4	84	<i>Humming 1/3</i> , <i>Humming 1/3 – floral</i> , <i>Humming 1/3 – anti-bacterial Plus</i> , <i>Humming Flare</i>
Laundry bleach	5	1	18	<i>Halter 1/2 for colors</i>
Dishwashing detergent	7	5	84	<i>Family herbal scent – concentrated</i> , <i>Family concentrated</i> , <i>Family mild-type</i> , <i>More easy for hands – concentrated</i> , <i>Family Power Gel</i>

* Rate: unit-based percentage of compact-type products sold, to total units sold within the product category

(2) Refill/replacement products

The company proactively launches refill/replacement products to promote reuse of product containers and functional parts. As of March 2003, 73 refill products and 21 replacement products were available. The average conversion rate to refill/replacement products for fiscal 2002 reached 74%. Trends in the major conversion rates to refill products are shown below. In particular, the conversion rates of fabric softener and household cleaners exceeded 80%.



Refill products (as of March 2003)

Classification	Total No. of items	Refill products		
		No. of items	Conversion rate*	Product names
Laundry detergent	4	4	79	<i>Attack</i> liquid, <i>Attack</i> spot cleaner, <i>Emal</i> delicate wash, <i>Attack</i> spray foam pre-care
Fabric softener	6	4	90	<i>Humming</i> 1/3, <i>Humming</i> 1/3 – floral, <i>Humming</i> 1/3 – anti-bacterial Plus, <i>Humming</i> Flare
Laundry bleach	5	3	73	<i>Haite</i> wide, <i>Haite</i> for colors, <i>Haite</i> 1/2 for colors
Starch	3	3	73	<i>Smoother</i> , <i>Keeping</i> , <i>Keeping</i> for machine washing
Dishwashing detergent	7	7	48	<i>Family</i> herbal scent – concentrated, <i>Family</i> concentrated, <i>Family</i> , <i>More</i> easy for hands – concentrated, <i>Family</i> mild, <i>Family</i> Power Gel, <i>Family</i> for dishwasher
Household cleaner	19	7	87	<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, <i>Family</i> Pure kitchen cleaner
Kitchen/household paper products	9	4	84	<i>Quickle</i> kitchen wipes, <i>Quickle</i> wipes for gas oven, <i>Quickle</i> toilet wipes, <i>Quickle</i> wipes for carpets
Pet care	11	1	71	<i>Kao</i> Pet Care wet tissues
Body cleanser	6	6	75	<i>Bioré</i> U powder-in, <i>Bioré</i> U (4), <i>Bioré</i> U cream-in
Shampoo/conditioner	16	5	76	<i>Merit</i> shampoo, <i>Merit</i> conditioner, <i>Merit</i> two-in-one shampoo, <i>Essential</i> damage care shampoo, <i>Essential</i> damage care conditioner
Facial care sheets	10	2	42	<i>Bioré</i> makeup remover – cotton wipes, <i>Bioré</i> eye makeup remover
Body care sheets	4	4	66	<i>Bioré</i> deodorant powder sheets (3), <i>Bioré</i> deodorant powder sheets for men
Hair styling agents	37	7	44	<i>Success</i> morning hair water – gel water, <i>Success</i> morning hair water – hair smoothing mist, <i>Lavenus</i> hair water, <i>Liese</i> mint shower, <i>Liese</i> straightening foam, <i>Liese</i> perm-emphasizing foam, <i>Liese</i> moisturizing foam
Bottom wipes	3	3	83	<i>Merries</i> cotton-touch bottom wipes, <i>Merries</i> toilet disposable bottom wipes, <i>Relief</i> toilet-disposable wipes
Bath additives	15	2	68	<i>Emolica</i> (2)
Hygienic care	4	1	75	<i>Sanina</i> toilet paper
Prestige cosmetics	135	10	88	<i>Sofina</i> fine fit refill, <i>Sofina</i> fine fit face powder refill, <i>Sofina</i> fine fit complete coverage type refill, <i>Raycious</i> gradation powder refill, <i>Raycious</i> ray blend powder refill, <i>Grace Sofina</i> foundation refill, <i>est</i> the powder makeup refill, <i>est</i> retouch loose powder refill, <i>AUBE</i> eyeliner pencil cartridge, <i>AUBE</i> eyebrow pencil cartridge

* Conversion rate: unit-based percentage of refill products sold, to total units sold for which refill products are available

Replacement products (as of March 2003)

Classification	Total No. of items	Refill products		
		No. of items	Conversion rate*	Product names
Household cleaner	19	4	57	<i>Haite</i> mildew remover, <i>Haite</i> mildew remover strong, <i>Magiclean</i> handy spray, <i>Mypet</i> for shine
Kitchen bleach	3	1	67	<i>Haite</i> foam
Drain cleaner	1	1	73	<i>Kitchen Wonder</i> drain slime remover
Car care	5	1	35	<i>Vega</i> car cleaner
Toilet aromatic deodorizer	3	3	100	<i>Refre</i> plug-in type (3 fragrances)
Semi-permanent hair color	10	10	62	<i>Blauné</i> (8), <i>Blauné</i> for men (2)
Hygienic care	4	1	72	<i>Sanina</i>

* Conversion rate: unit-based percentage of replacement products sold to total units sold for which refill products are available.

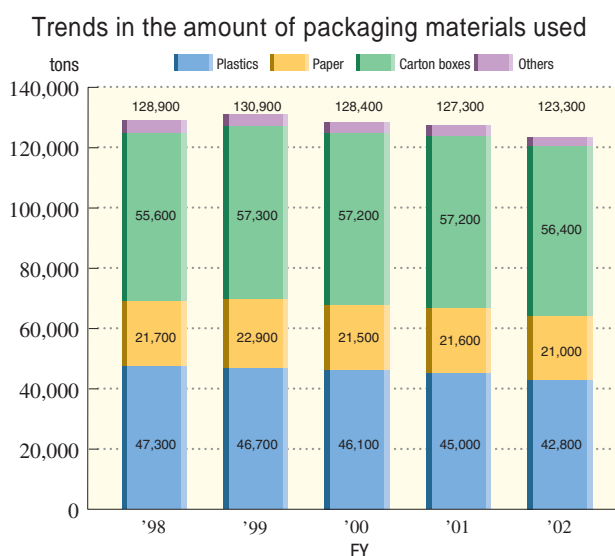
(3) Use of recycled materials

Kao makes efforts to use recycled paper and recycled plastics for packaging materials, taking quality and costs into consideration. The carton and measuring spoon used for *Attack* laundry detergent are made of 100% recycled paper and 100% recycled polypropylene plastics, respectively. Other products for which recycled paper and/or recycled plastics are used are indicated below. In fiscal 2002, the company replaced plastic lids for *Attack* laundry detergent with lids made from recycled paper.

- Products with recycled paper boxes
Soap, hair color, toothpaste, bath additives, etc.
- Products in recycled plastic containers
Family dishwashing detergent (PET for beverage bottles)
Wide Haiter kitchen bleach (Polyethylene)
Toothpaste tray (Polypropylene)
Bioré facial cleanser tray (Polypropylene)

● Reduction of Packaging Materials

The total amount of packaging materials used in fiscal 2002, including outer carton boxes, dropped by 4,000 tons year-on-year to 123,300 tons. The amount of plastics used is falling every year, specifically by 2,200 tons in fiscal 2002.



The company strives to reduce the amount of packaging materials used even at the initial packaging design stage. Most especially, our efforts to compact products and introduce refill/replacement products have resulted in a significant reduction of packaging materials used.

All product categories that currently have compact-type and/or refill/replacement products are shown in the previous section. As for the 7 major product categories,* we applied the methods mentioned below to provisionally estimate the reduction of plastics used through the intro-

duction of compact-type and/or refill/replacement products.

* 7 product categories a. Liquid laundry detergent b. Fabric softener c. Laundry bleach
d. Dishwashing detergent e. Household cleaner f. Body cleanser g. Shampoo/ conditioner

① Effect of introducing refill/replacement products: Estimation of the amount of plastics used, assuming that all products sold are NOT refill/replacement products. (Compact-type products are included in the estimation.)

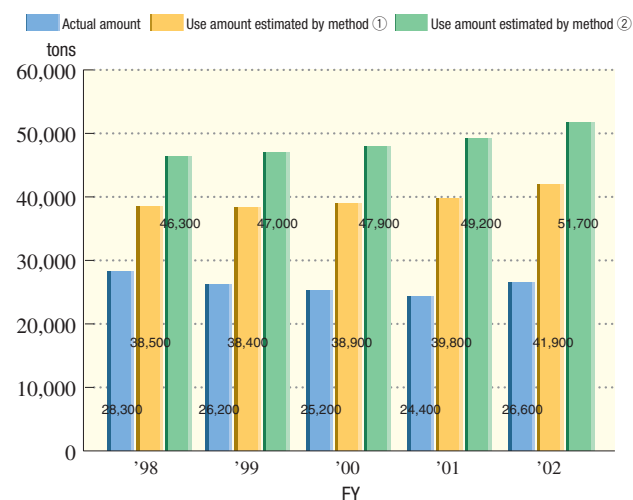
② Effect of compacting products and introducing refill/replacement products: Estimation of the amount of plastics used, assuming that all products sold are NEITHER compact-type NOR refill/replacement products.

The differences between the two figures for each fiscal year indicate the following:

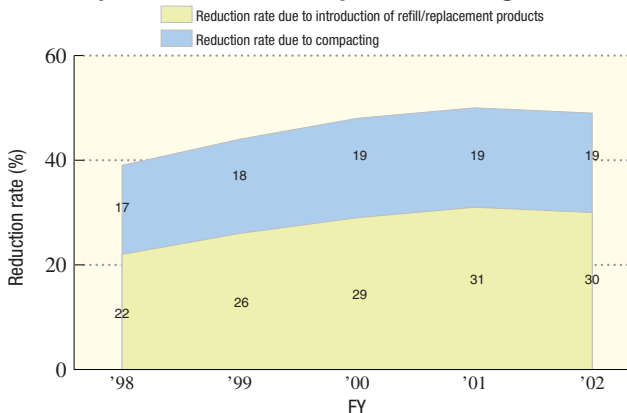
- The difference between the estimated amount used, based on method ① and the actual amount used, implies the reduction of the amount of plastic used, due to the introduction of refill/replacement products.
- The difference between the estimated amount used based on method ② and that based on method ①, equals the reduction of the amount of plastic used, caused by the compacting of products.

The actual amount of packaging materials used in fiscal 2002 was 26,600 tons, while the use amount estimated by method ② was 51,700 tons. This means that the effect of introducing compact-type and refill/replacement products was a reduction in the amount of packaging materials used, by 25,100 tons or 49%. The breakdown of the 25,100 tons was 9,800 tons (19%) for compact-type products and 15,300 tons (30%) for refill/replacement products.

Reduction performance concerning the amount of plastics used for the 7 major product categories



Reduction rate of the amount of plastics used for 7 product categories



Display of Packaging Materials and Cosmetic Ingredients Information

(1) Display of identification marks

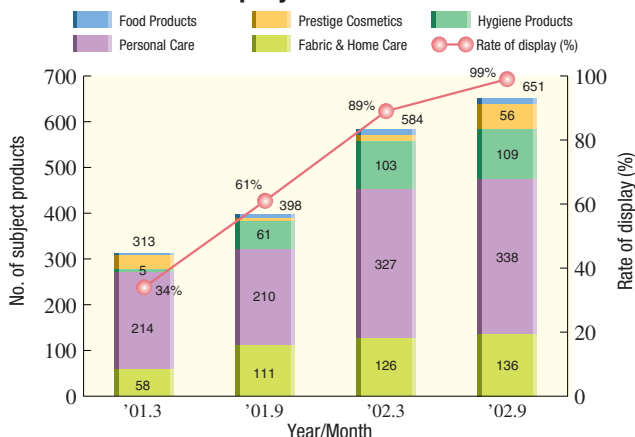
The Container and Packaging Recycling Law stipulates the roles for consumers, local authorities and companies respectively to sort garbage, collect sorted garbage, and to recycle garbage. Since April 2001, the Law for Promotion of Effective Utilization of Resources requires companies to display identification marks on products which specify whether the packaging is paper or plastic so that consumers can easily sort garbage.



Identification marks for plastic and paper

Kao prepared guidelines concerning the display of identification marks in August 2000 and promoted the labeling of such. In September 2002, the company almost completed activities to display the marks on relevant products with the exception of certain products.

Trends in display of identification marks



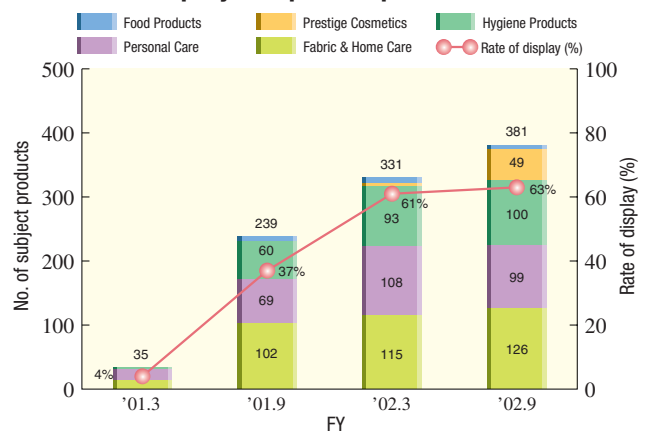
- Fabric and Home Care: laundry detergents, fabric softeners, dishwashing detergents, household cleaners, bleaches, etc.
- Personal Care: shampoos/conditioners, body cleansers, hair colors, toothpastes/toothbrushes, bath additives, etc.
- Hygiene Products: sanitary napkins, disposable diapers, adult diapers, etc.

(2) Display of specific plastic materials used

If the packaging is plastic, the company displays the major specific materials used on as many products as possible. As of September 2002, 381 items or 63% of all subject products display specific plastic materials used.

Companies independently decide how to display specific plastic materials information. Although some products have limited space on the package to display this information, Kao takes the display area and other relevant laws into consideration and promotes display of such information on as many products as possible.

Trends in display of specific plastic materials



Example of display of specific plastic materials

(3) Labeling of all cosmetic ingredients used

In April 2001, the Japanese Pharmaceutical Affairs Law was revised to ease regulations and keep balance with systems in North America and Europe. Due to this revision, cosmetics manufacturers are no longer required to follow the approval system, but must produce and supply products with all ingredients displayed on the packaging or detailed on the paper enclosed inside the package.

In compliance with the law, the company has displayed all ingredients on new and improved cosmetics products, which have been manufactured since April 1, 2001. The display on existing products was changed on or before September 2002. All of Kao's 308 subject products display all ingredients as of March 2003.



Example of display of all cosmetic ingredients used

Research & Development Division Pursuing a Sustainable Society

The achievement of a pleasant and healthy lifestyle is accompanied by energy consumption and the emission of tangible and intangible substances such as CO₂, effluence and waste. People cannot live without loading some burden on the environment. However, our sense of crisis is growing increasingly strong as the balance with nature becomes strikingly uneven due to population growth and an increase in environmental burden, both in terms of quantity and quality, loaded by mass consumption and disposal accordingly. For this reason, a sustainable society is highly sought-after. In this day and age, society does not allow the existence of corporations that conduct their businesses contrary to the idea of a sustainable society. In other words, the role of research and development divisions has become increasingly important.

Kao's Research & Development Division not only pursues the development of products with superior functions which are convenient and easy to use, but also promotes the development of manufacturing processes which load minimal burden on the environment, the development and application of highly biodegradable raw materials, and the utilization of recyclable materials. These efforts have resulted in the reduction of packaging materials used and energy consumed in the distribution of laundry detergent, fabric softener and dishwashing detergent, which has been made possible due to the concentration and compacting of products. We have also succeeded in lowering the volume of organic matter contained in these products through improvements in product performance. Although some of our efforts cannot be clearly observed, we consistently strive for improvements in various fields. Moreover, the development of easy-to-use refill pouch products has extensively promoted the reduction of plastics used for packaging.

Kao is a manufacturer of raw materials and chemical products as well as consumer products. In developing raw materials and improving manufacturing processes, the company has developed processes which do not require auxiliary materials (e.g. organic solvent), processes that do not discharge effluence, new catalyst processes resulting in lower unit indices related to raw materials and energy, and the reduction of by-products and waste disposal.

We consider that the continuation and improvement of these activities will become increasingly vital. Based on this consideration, we have selected "Materials and technologies which harmonize with the environment" as our medium to long-term subjects of fundamental research for the R&D Division. These activities began in a type of virtual research laboratory in autumn 2002, with participation by researchers across research laboratories. From the viewpoint of "green" chemicals, we are working toward such research subjects as review and development of raw materials, formula and specifications, productive energy-based LCA (life cycle assessment), proposal and development of manufacturing processes that facilitate energy saving, and the reduction of environmental burden.

Through consistent efforts in our research and development activities, we would like to contribute to the establishment of a sustainable society.



A stylized, handwritten signature in black ink that reads "Naotake Takaishi".

Naotake Takaishi
Executive Vice President, Global Research & Development

Researches for Development of Production Engineering

To propose higher value for products and services, the Processing Development Research Laboratories conduct researches for the development of manufacturing processes and new production engineering that enable the supply of high quality new materials and new and improved products in a timely manner. Upon the development of new processes, the company not only focuses on raising efficiency and optimization of manufacturing processes but also pays attention to minimizing environmental burden. To achieve high product performance, which is becoming more complicated and of a higher level, and to lower the impact on the environment, the development of even more superior engineering is increasingly demanded.

Based on the basic principles of “3Rs” activities, (Reduce, Reuse, Recycle), we conduct an extensive range of research and development activities, for example, to lessen and simplify manufacturing processes, to design processes for reduction of electricity, heat and other energy consumed, to develop processes that do not require organic solvents, to develop totally new processes that significantly reduce environmental burden and energy consumption by using biotechnology instead of chemical treatment, and to research and develop environmentally-sound alternative materials.

Through these activities, we have reduced consumption of thermal energy and generation of waste, particularly in the manufacturing process for fatty alcohols, which are Kao’s representative key materials. Specifically, based on our expertise of the suspended-bed reaction process method, we have developed the fixed-bed reaction process method, resulting in a reduction of thermal energy consumed. The life of the catalyst has been extended due to the introduction of a highly functional catalyst. Through these efforts, we have established technologies to markedly reduce waste and started the operation in fiscal 2002.

Upon manufacture of raw material bases used in *Attack* laundry detergent with microparticles, we reviewed polymerization reaction processes. We have introduced new processes to maintain superior quality and performance even at low temperature. These efforts resulted in reduction of CO₂ emission by approximately 71% (theoretical value), compared to the conventional method.

To further improve these activities, we continue to proactively implement measures to lower the environmental burden by setting a policy of our research laboratories in fiscal 2003. We also strive to conduct activities across laboratories in pursuit of fundamental technology research subjects and to introduce LCA (life cycle assessment) for new processing development.

Through our extensive research activities, we commit ourselves to further contributing to society.



A handwritten signature in black ink that reads "Toshiharu Numata". The signature is fluid and cursive, with the last name "Numata" being more prominent.

Toshiharu Numata
Director, Processing Development Research Laboratories

Production

● Trends and Breakdown of Capital Investment in Environmental Measures

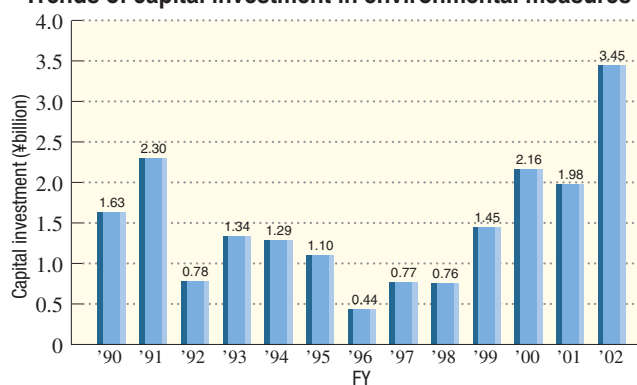
In 1973, following the enactment of various pollution prevention laws, the company focused on capital investment in environmental measures. From that time on, the company has continued such capital investment as a means to conserve the environment.

Since environmental accounting was introduced in fiscal 1999, both the definition and standard of capital investment in environmental measures have been reevaluated. We incorporated two new items into our environmental accounting: production facilities that lessen the burden on the environment and investment in research and development aimed at enhancing environmental conservation.

This year's results Capital investment in fiscal 2002 environmental measures was ¥ 3.45 billion, which accounts for about 19% of the company's total capital investment in Japan. The cumulative capital investment from fiscal 1973 is ¥33.0 billion.

Primary investments in energy saving and reduction of CO₂ emission involved installing a gas turbine to changeover fuel to natural gas in the Wakayama Plant, machinery that prevents powder dust from dispersing in the production facilities for laundry detergent in the Kawasaki Plant, an incinerator in the Sakata Plant and production facilities to allow improvements to packaging for *Attack* laundry detergent, through the replacement of plastic lids with paper lids.

Trends of capital investment in environmental measures



Breakdown of capital investment in environmental measures

Unit: ¥million

Items	Investment	
	FY 2001	FY 2002
Measures for energy saving and reduction of CO ₂	313	878
Measures for prevention of air pollution	50	892
Measures for prevention of water pollution	388	164
Measures for reduction of waste and recycling	650	694
Measures to counter noise, vibrations and odors	75	48
Production facilities that lessen environmental burden	228	702
Research & development aimed at enhancing environmental conservation	269	52
Others	10	16
Total	1,981	3,445

● Amount of Energy Consumed

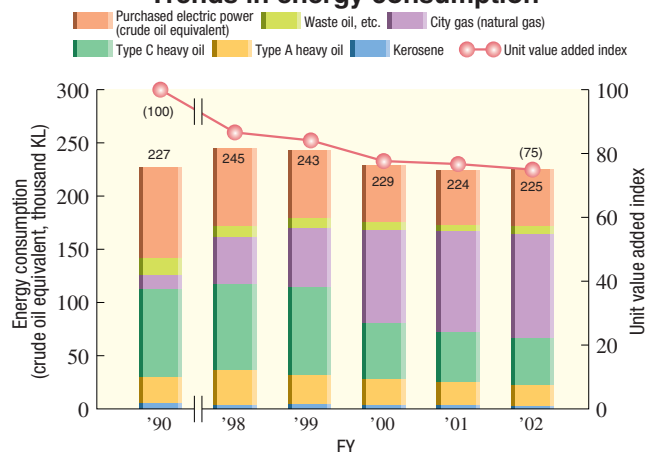
Following fiscal 2001, the company strove to achieve its target to reduce energy consumption to level 75 and 70 in fiscal 2005 and 2010 respectively, taking the unit value added index in fiscal 1990 as 100. Key strategies to achieve the target for energy conservation are similar to fiscal 2001, including the introduction of more co-generation facilities and the reduction of energy consumption by raising productivity.

This year's results Due to an increase in production, energy consumption increased by approximately 1,000 KL (crude oil equivalent). However, our energy saving efforts resulted in an improvement of the unit value added index by 1.9 points year-on-year. Energy consumption decreased to 75% that of fiscal 1990 which signifies our advance achievement for fiscal 2005. Major activities involved 1) introduction of co-generation facilities, 2) reduction of energy consumption by raising productivity and 3) changeover to energy saving equipment. In fiscal 2002, the Ministry of Economy, Trade and Industry conducted an on-site investigation for type 1 designated energy management factories at our plants in Wakayama, Kawasaki, Kashima, Tokyo and Sakata, each of which was highly evaluated.

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; Ehime Sanitary Products 3rd facilities
2002	Wakayama Plant 4th facilities
2003 (planning stage)	Kawasaki Plant 3rd facilities

Trends in energy consumption

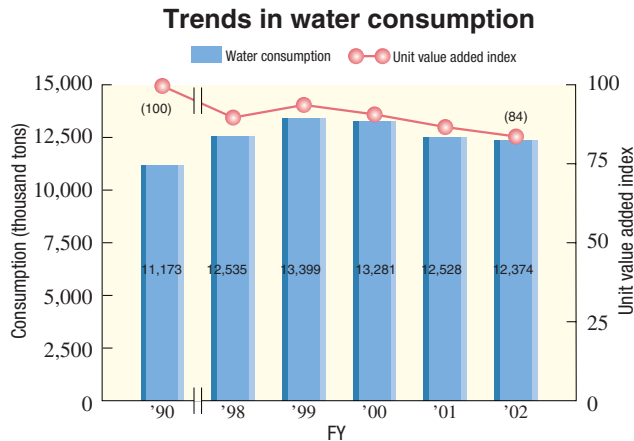


Future issues Although we have cleared the target for fiscal 2005, we continue to promote energy conservation through the introduction of more co-generation facilities and the reduction of energy consumption by raising productivity. In particular, we will focus on recovering unused energy and introduction of energy saving equipment. We will also consider introducing new technologies for energy saving and recycling energy.

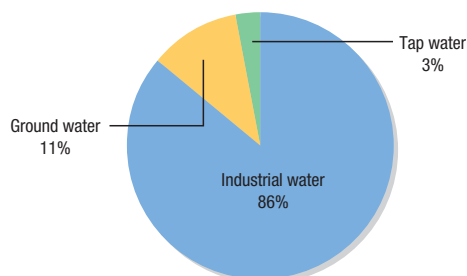
● Amount of Water Consumed

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, bathroom and other daily use. We strive for efficient consumption of water by utilizing water effectively according to quality and required usage.

This year's results In fiscal 2002, the annual level of water used dropped by 150,000 tons year-on-year to approximately 12,400,000 tons. 86% of this total comprises industrial water. Despite an increase in production of consumer products and other products, our efforts toward the efficient usage of water resulted in a reduction of water consumption, and the unit value added index improved by 3 points.



Breakdown of water consumption in fiscal 2002
(Total approximately 12,400,000 tons)



● Amount of Greenhouse Gas Emitted

We promoted activities to achieve our target of reducing CO₂ emission in fiscal 2010 by 6%, compared to the level of fiscal 1990. Our countermeasures against global warming are centered on the reduction of CO₂ emission. Principal measures to achieve this target include promotion of a changeover of fuel to city gas (natural gas) and activities to conserve energy.

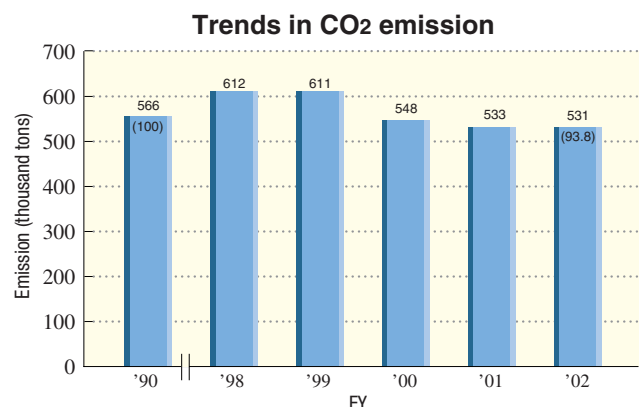
This year's results Despite an increase in energy consumption in fiscal 2002, CO₂ emission was reduced by 2,000 tons year-on-year or by 6.2% compared to the level of fiscal 1990. Major contributing factors were: 1) the changeover of fuel to natural gas, 2) the reduction of energy consumption based on energy saving activities and 3) the introduction of co-generation facilities.

Based on the Fluorocarbons Recovery and Destruction Law, we strove to prevent chlorofluorocarbon (CFC) leakage, which can occur in the maintenance of refrigerating machinery, and to recover and recycle CFC.

Future issues We continue our countermeasures against global warming with a focus on a changeover of fuel to natural gas, energy saving activities and efficient utilization of energy. The company also continues to further strengthen activities for energy conservation and to examine the usability of recyclable energy as electric power, by utilizing wind power, solar power and a "green electric power*" trading system. We also study ways to utilize biomass as recyclable energy.

The company will specify the amount of greenhouse gas, centering on CFC, contained in machinery. When renewing machinery, we will consider introducing machinery that uses less greenhouse gas.

* Green electric power: Electric power generated with natural energy, i.e. solar power, wind power, without emitting CO₂



Figures in brackets are indices based on the figure of fiscal 1990 as 100.

● Quantities of Emissions Contributing to Air Pollution

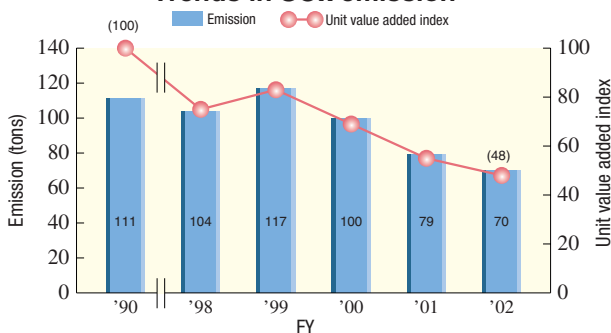
To reduce SOx emission, the company has implemented flue gas desulfurization from large boilers, and has changed the fuel used in small boilers from type C heavy oil to kerosene or type A heavy oil, which have a lower sulfur content. Because it has less of an impact on global warming, city gas (natural gas), or so-called “clean energy” is being promoted for use at the plants located in urban areas and industrial complexes. The company has also installed low NOx burners to reduce NOx emission.

This year's results In fiscal 2002, the company continued to change fuel used to that of a lower sulfur content at the Sakata Plant, and transferred production of detergent products for personal use to other plants that use natural gas in order to reduce total SOx emitted at all of the company's plants. As a result, annual SOx emission dropped by 9 tons year-on-year to 70 tons despite increased fuel consumption. The unit value added index fell by 7 points year-on-year to 48, based on the fiscal 1990 index set at 100.

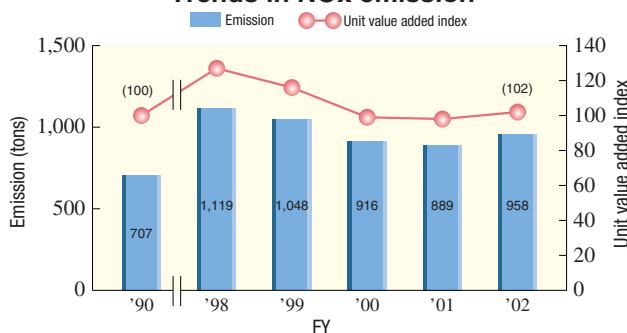
According to the increase in fuel consumption, the annual NOx emission increased by 69 tons year-on-year to 958 tons. The unit value added index rose by 4 points in comparison with the previous fiscal year.

Soot and dust quantities decreased by 27 tons year-on-year to 112 tons. The unit value added index improved by 18 points to 67 due to a reduction of soot and dust emitted from manufacturing processes for powder detergent.

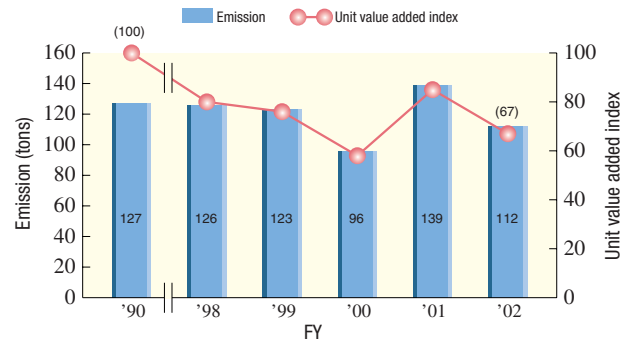
Trends in SOx emission



Trends in NOx emission



Trends in soot and dust emission



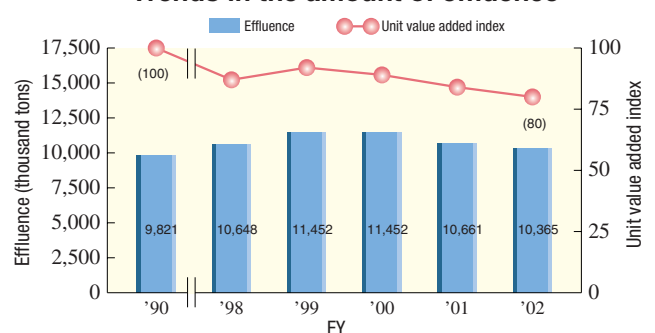
● Quantities of Emissions Contributing to Water Pollution

We have emphasized comprehensive effluence treatment measures since 1972 and have implemented “coagulation treatment,” “biological treatment,” “activated carbon treatment” and other processes. The company strives to maintain and control facilities for effluence treatment in each plant with special attention to water quality control related to effluence.

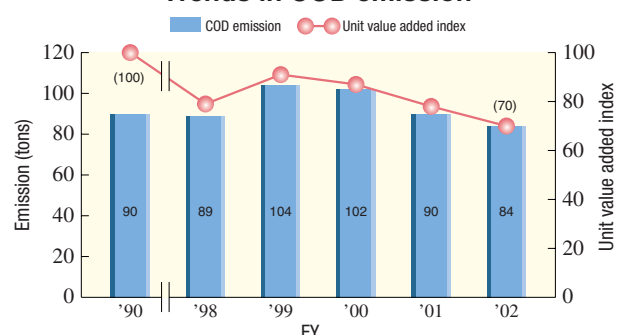
This year's results Through our efforts for efficient use of water, annual water consumption dropped by 300,000 tons year-on-year to approximately 10,365,000 tons, taking the unit value index down 4 points to 80. No problems with water quality were observed.

The annual COD emission was lowered by 5 tons to 84 tons, improving the unit value added index by 7 points year-on-year. Emissions of nitrogen and phosphorus were significantly lower than the regulated level.

Trends in the amount of effluence



Trends in COD emission



● Waste

The company is promoting activities to reduce waste according to its target to reduce final disposal to under 15% in fiscal 2010, based on a figure in fiscal 1990 of 100%.

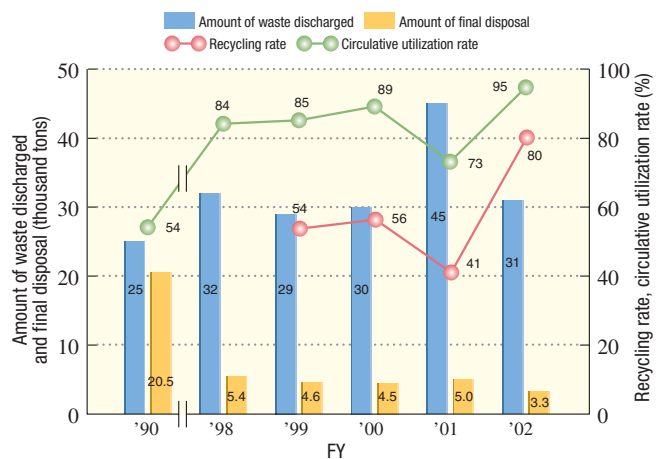
This year's results To reduce sources that generate waste, the company continued to review how different kinds of waste are generated and implement appropriate measures. The company also installed waste disposal and treatment facilities to promote internal activities for thermal recycling. Despite a new source of waste generation from switching production for extensively improved products, the amount of waste disposed was reduced by approximately 14,000 tons year-on-year. The final disposal was also reduced by 1,700 tons year-on-year to 16% compared to the level of fiscal 1990.

The chart shows the flow of waste treatment and amount of waste at each stage based on the Environmental Performance Indicator Guidelines (2002 version). For the waste recycling rate and circulative utilization rate in the chart, please refer to the treatment flow and calculations.

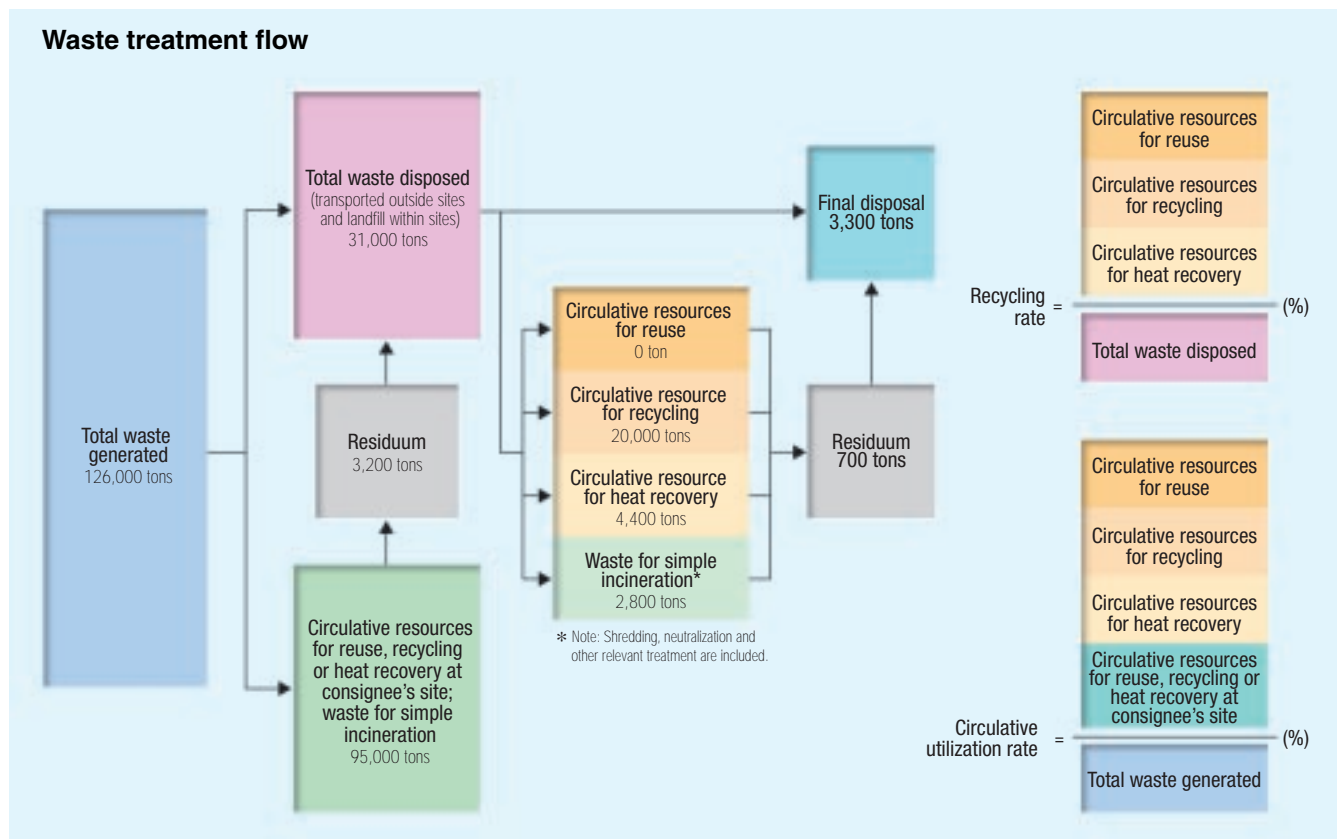
Future issues

The key issue is reduction of waste disposed, in particular achievement of zero emission of final disposal. Ehime Sanitary Products Company, Limited has conducted full-fledged "zero emission" activities since 2002. The recycling of incinerated ash and burnt residue, which are generated after thermal recycling, are essential to achieve zero emission. We will further strive to implement effective measures and achieve the goal within fiscal 2003. Similarly, we also take efforts to reduce waste and promote the recycling of waste in other plants to achieve zero emission.

Amount of waste discharged and final disposal, recycling rate and circulative utilization rate of waste



Waste treatment flow



● Soil Pollution

According to records concerning the use of chemical substances, the company measured 26 substances related to groundwater pollution that are subject to environmental standards at wells inside the Wakayama Plant, Tochigi Plant and Sakata Plant. The results are shown below, and

the well water was recognized to be pollution free in all of the three plants.

The company continues measurements as necessary, according to records concerning the usage of chemical substances and measurement results for well water.

No.	Plant	Wakayama Plant			Sakata Plant	Tochigi Plant	Standard value for ground water (Unit: mg/L)
	Deep well name	Measuring point A	Measuring point B	Measuring point C			
	Sampling date	June 21, 2002	June 21, 2002	June 21, 2002	August 6, 2002	February 24, 2003	
1	Cadmium	SVL	SVL	SVL	SVL	SVL	0.01 or less
2	Total Cyanide	ND	ND	ND	ND	ND	ND
3	Lead	SVL	SVL	SVL	SVL	SVL	0.01 or less
4	Chromium (VI)	SVL	SVL	SVL	SVL	SVL	0.05 or less
5	Arsenic	SVL	SVL	SVL	SVL	SVL	0.01 or less
6	Total Mercury	SVL	SVL	SVL	SVL	SVL	0.0005 or less
7	Alkyl Mercury	ND	ND	ND	ND	ND	ND
8	PCBs	ND	ND	ND	ND	ND	ND
9	Dichloromethane	SVL	SVL	SVL	SVL	SVL	0.02 or less
10	Carbon Tetrachloride	SVL	SVL	SVL	SVL	SVL	0.002 or less
11	1,2-Dichloroethane	SVL	SVL	SVL	SVL	SVL	0.004 or less
12	1,1-Dichloroethylene	SVL	SVL	SVL	SVL	SVL	0.02 or less
13	cis 1,2-Dichloroethylene	SVL	SVL	SVL	SVL	SVL	0.04 or less
14	1,1,1-Trichloroethane	SVL	SVL	SVL	SVL	SVL	1.0 or less
15	1,1,2-Trichloroethane	SVL	SVL	SVL	SVL	SVL	0.006 or less
16	Trichloroethylene	SVL	SVL	SVL	SVL	SVL	0.03 or less
17	Tetrachloroethylene	SVL	SVL	SVL	SVL	SVL	0.01 or less
18	1,3-Dichloropropene	SVL	SVL	SVL	SVL	SVL	0.002 or less
19	Thiuram	SVL	SVL	SVL	SVL	SVL	0.006 or less
20	Simazine	SVL	SVL	SVL	SVL	SVL	0.003 or less
21	Thiobencarb	SVL	SVL	SVL	SVL	SVL	0.02 or less
22	Benzene	SVL	SVL	SVL	SVL	SVL	0.01 or less
23	Selenium	SVL	SVL	SVL	SVL	SVL	0.01 or less
24	Nitrate-N and Nitrite-N	SVL	SVL	SVL	SVL	SVL	10 or less
25	Fluorine	SVL	SVL	SVL	SVL	SVL	0.8 or less
26	Boron	SVL	SVL	SVL	SVL	SVL	1 or less

SVL: Standard value or less ND: Not detectable

● Compliance with Laws and Bylaws

The company's policies regarding the Environment, Safety and Health require compliance with laws and regulations.

However, in November 2002, the Kawasaki Plant was instructed by the Labor Standards Supervision Office to suspend usage of machinery due to a breach of the safety and sanitation regulation (Article 101). On the same day, in accordance with these instructions the company covered certain parts of machinery, where there was a possibility employees could be caught in the working machinery. The company sent a report with photographs attached to show the improvements, which were accepted by the Office.

Aside from this case, the company did not breach any laws or bylaws during fiscal 2002, including six funda-

mental environmental laws related to air, water, noise, vibration, offensive odors and waste, and four safety laws related to fire prevention, industrial plant complexes, high pressure gas, and occupational health and safety.

In 1994, the company transferred a total of 4.5 tons of polychlorinated biphenyls (PCBs) stored by the plants, to the Wakayama Plant for special control. As soon as a treatment method is established, we will properly treat PCBs at the earliest possible time.

A recent report points out the possibility that there may be slight traces of PCBs inside transformers and other equipment. When changing relevant equipment, the company will check to see whether there PCBs are present, report to the government office if so and properly control PCBs.

Distribution

● Transportation and Exhaust Volumes

The total volume of transportation in fiscal 2002 was 520 million ton km, a level similar to the previous year. Despite an approximately 4% increase in production, the volume of transportation remained the same. This is due to the fact that production of laundry detergent and fabric softener was discontinued in the Sakata Plant, and integrated into the Wakayama Plant and Kawasaki Plant.

Means of transportation consisted of 57% trailers, 12% 10-ton trucks, 20% JR trains and 12% ocean freight containers.

Exhaust emission totals were 67,000 tons of CO₂, 21 tons of SO_x and 452 tons of NO_x.

The company promotes joint delivery activities with other companies ranging from distribution centers to

retailers. Specifically, we implemented a joint delivery system at 37 distribution centers with 34 other companies, to deliver 63 million packages in fiscal 2002. This move resulted in a 51% decrease in annual transportation distances covered and a 39% fall in CO₂ emissions in the Fukuyama district, compared to the level the year before the system was introduced. Based on performance in the Fukuyama district, the total amount of CO₂ emitted by the company is estimated to be in the range of 22,000 tons.

In fiscal 2002, 340,000 tons of chemical products were transported. As we have not calculated the transportation distance for chemical products, the amount of exhaust is not specified. In the future we additionally aim to calculate the transportation distance for chemical products.

Management of Chemical Substances

Emission Levels of Substances Subject to PRTR Law

The company has participated in the PRTR survey conducted by the Japan Chemical Industry Association for the past several years. We have reported on emissions and transport levels concerning the environment, for chemical substances handled or manufactured by the company.

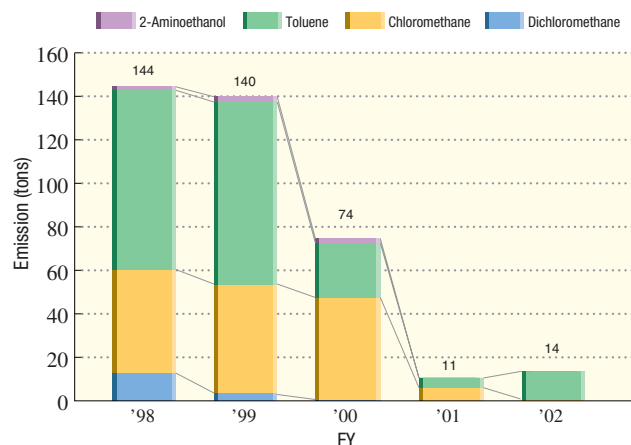
The chemical substance management promotion law (PRTR law) requires emission levels to be reported from fiscal 2002. In line with this, the company has changed substances surveyed to those subject to the PRTR law.

The company identified 57 substances to report in fiscal 2002.

Of these 57 substances, 49 had emission levels of over 5 tons, the current level which must be reported. Total use for the year was 184,000 tons. There were 14 tons of emission into the air and 0.2 tons of emission into public water, while there was no emission into the soil. The table below indicates the emission levels per subject substance. The section, "Data of Environmental Burden Loaded by Plant" on pages 38 to 39 specifies substances whose emission was over 1 ton as well as emission levels of those substances in each plant.

The company has set targets to reduce emissions of each substance subject to PRTR law to less than 1 ton annually per plant. Substances whose emission was over 1 ton in fiscal 2001 were chloromethane and toluene. In fiscal 2002, we achieved the target for chloromethane by installing facilities which collect and burn chloro-

Emission levels of main substances subject to PRTR law into the air



methane. However, the emission of toluene into the air increased year-on-year, due to the reconstruction of incineration facilities in accordance with the law concerning dioxin, which resulted in the company being prevented from using incineration for a certain period. We forecast that the target for toluene will be cleared in fiscal 2003, as reconstruction is complete, and toluene used in solvent cleaner was replaced with butyl acetate and isooctane (50/50 composition).

Emission levels of substances subject to PRTR law (FY 2002):
Substance whose annual use level in each plant was over 1 ton

(tons/year)

Cabinet order No.	Names of substances	Amount of emission in the air
1	Zinc compounds (water-soluble)	0
3	Acrylic acid	0
4	Ethyl acrylate	0
6	Methyl acrylate	0
7	Acrylonitrile	0
16	2-Aminoethanol	0
17	N-(2-Aminoethyl)-1,2-ethanediamine; Diethylenetriamine	0
21	m-Aminophenol	0
23	1-Allyloxy-2,3-epoxypropane	0
24	n-Alkylbenzenesulfonic acid and its salts (alkyl C=10-14)	0
28	Isoprene	0
29	4,4'-Isopropylidenediphenol; Bisphenol A	0
40	Ethylbenzene	0
42	Ethylene oxide	0
43	Ethylene glycol	0.1
46	Ethylenediamine	0
54	Epichlorohydrin	0.1
56	1,2-Epoxypropane; Propylene oxide	0
58	1-Octanol	0
63	Xylene	0
65	Glyoxal	0
68	Chromium and chromium (III) compounds	0
80	Chloroacetic acid	0
95	Chloroform	0.5
96	Chloromethane; Methyl chloride	0.6
102	Vinyl acetate	0
145	Dichloromethane; Methylene dichloride	0
166	N,N-dimethyldodecylamine N-oxide	0
176	Organic tin compounds	0

Cabinet order No.	Names of substances	Amount of emission in the air
177	Styrene	0
205	Terephthalic acid	0
207	Copper salts (water-soluble, except complex salts)	0
227	Toluene	13
231	Nickel	0
232	Nickel compounds	0
251	bis (Hydrogenated tallow) dimethylammonium chloride	0
254	Hydroquinone	0
266	Phenol	0
269	di-n-Octyl phthalate	0
270	di-n-Butyl phthalate	0
272	bis (2-Ethylhexyl) phthalate	0
273	n-Butyl benzyl phthalate	0
292	Hexamethylenediamine	0
297	Benzyl chloride	0
300	1,2,4-Benzenetricarboxylic 1,2-anhydride	0
304	Boron and its compounds	0
307	Poly (oxyethylene) alkyl ether (alkyl C=12-15)	0
308	Poly (oxyethylene) octylphenyl ether	0
309	Poly (oxyethylene) nonylphenyl ether	0
310	Formaldehyde	0
311	Manganese and its compounds	0
313	Maleic anhydride	0
314	Methacrylic acid	0
318	2-(Dimethylamino) ethyl methacrylate	0
320	Methyl methacrylate	0
336	3-Methylpyridine	0
Total		14.2
179	Dioxins (unintentionally formed substances, unit: mg per year)	26.5

Management of Safety Information on Chemical Products

● Management of Safety Information for Chemical Substances

The company has developed a Master Index (MI), the company's proprietary code system for identifying chemical substances. We are also building a system that can manage all chemical substances from individual chemicals to compounded final products. To control chemical products, the company began operation of the system, which works with the MI and integrates a database of laws and bylaws, a new MSDS preparation and reference system, and a system for chemical products under planning, in autumn 2001. From 2003, Kao is promoting the introduction of this system to the Group companies, Kao-Quaker Company, Limited in Japan and Kao Industrial (Thailand) Company Limited in Thailand.

To control consumer products, we began to register existing raw materials in the MI system and to operate a system which centralizes information about the quality of raw materials, which works in conjunction with the MI system, in autumn 2002. Specific information to be centralized includes quality standards, MSDS (Management Safety Data Sheet), test results concerning the resistance of microorganisms and supply chain management system information. This move signifies the company's establishment of a centralized quality control system for raw materials at the initial stage of the product life cycle, namely research and development, and production. To date we have registered approximately 12,000 chemical substances, including chemical products in the MI system.

● Thorough Introduction of MSDS and Yellow Cards

The company currently handles approximately 9,100 kinds of raw materials (approximately 3,500 kinds of chemical substances), including those purchased. Of these materials, we have completed preparation of the MSDS for all relevant products (4,137 products in Japanese version; 6,333 products including U.S. and E.U. version), implying 100% introduction of MSDS to all products. To improve the contents in the MSDS, the company has been reviewing safety data since 1995. We have completed safety tests for a total of 151 of our own products (33 substances in fiscal 2002). The safety tests are projected to be complete in 2004. Test results are shown in the existing MSDS, so the MSDS with more specific information is distributed to our customers accordingly.

We have introduced approximately 3,300 Yellow Cards, achieving 100% introduction of Yellow Cards to products. In fiscal 2002, we added UN ID and Guide numbers and revised instructions on all Yellow Cards.

The table below shows the number of products which the MSDS was newly prepared or revised for, in fiscal 2002 according to the above-mentioned system using MI as the key code.

	Prepared in fiscal 2002			Cumulative total
	Newly prepared	Revised	Subtotal	
Japanese version	367	1,383	1,750	4,137
English version	231	554	785	1,531
US version	76	18	94	418
EU version	56	22	78	247
Total	730	1,977	2,707	6,333

Along with the thorough introduction of MSDS and Yellow Cards, the company operates a system that permits viewing of the MSDS via the internet at each distribution base for chemical products and provides public comprehensive safety information.

● Compliance with Laws When Exporting Chemical Substances (Export Management)

Due to the current international situation, including the terrorist attacks in the U.S., the Export Trade Control Ordinance was revised, and in April 2002, Catch-All Controls, a self-examination system concerning the export of all goods or technologies that may be used in the development of weapons of mass destruction, was introduced. In addition to our conventional methods of judging whether export of Kao's products and samples pass laws and regulations, i.e. the United Nations dangerous substances classification, and applicability of the Export Trade Control Ordinance, the company has newly designed and implemented an internal checking system to comply with the Catch-All Controls and contribute toward sustaining international peace and safety.

In accordance with last year's legal revision, the company operates a company-wide export control section, focuses on educating employees about export control, and utilizes check sheets and other relevant tools. In addition to internal examinations in relation to export control, the company strives to establish a company-wide system to confirm that requirements related to the usage of exported products and services, and requirements from customers comply with the Catch-All Controls system. Simultaneously, the company is implementing a plan to utilize a computer system in order to alleviate the increasing burden of preparing documents and work related export control. Specifically, we integrated the requirements concerning the Catch-All Controls examination into the existing export system for commercial cargo last autumn. This move has dramatically reduced workloads.

International Contribution to Summarize the Safety Information of Chemical Substances

In 1992, the Organization for Economic Co-operation and Development (OECD) decided to summarize the safety data of chemical substances with annual global production of over 1,000 tons (a level of 450 tons or one million pounds in the U.S.). These substances are known as High Production Volume Chemicals (HPV). Following the decision by the OECD, the International Council of Chemical Association (ICCA) has taken initiatives to organize safety data in cooperation with chemical corporations around the world, making the production of HPV in two or more regions, from the U.S., EU and Japan, a priority.

The method of organizing data first involves establishing a consortium or community among companies that manufacture and use the same HPV. The member companies collect and present information, including findings that have been already announced in research papers, test results belonging to each company, usage of HPV, and production volume. The consortium uses such information to summarize how dangerous the chemical substance is, in a conference held by the OECD, which judges whether further safety information is required or not.

These activities are positioned as independent activities conducted by chemical corporations to exercise their social responsibility. The companies, therefore, aim to achieve the “protection of workers, consumers and customers,” “abolishment of unnecessary animal testing” and “conservation of the global environment.”

Kao also promotes summarizing safety data in collaboration with other companies which manufacture the same HPV. Kao Corporation has participated in consortiums which study fatty alcohol and sodium n-alkylbenzene sulfonate (LAS) since fiscal 2001.

This fiscal year we became new members of consortiums which study amine oxide and cement dispersant. Kao Chemicals Europe, S.L. also independently participates in consortiums which study alkylsulfate, aminopropylbaine and esterquads ammonium salt.

Together with other members of the Japan Soap and Detergent Association, the company cooperates and shares safety information about other raw materials used in detergents with SDA (The Soap and Detergent Association) of the U.S., AISE (International Association for Soap, Detergent and Maintenance Products) of Europe, and HERA (Human and Environmental Risk Assessment), which conducts a joint risk assessment project on household cleaning product ingredients with AISE members.

In addition, Kao participates in an international activity called the Long-Range Research Initiative (LRI) in parallel with a safety inspection program concerning HPV. LRI, a long-term independent fundamental research concerning the impact of chemical substances on human health and the environment, is promoted under ICCA

with the cooperation of the chemical industry in Japan, the U.S., and Europe, namely the Japan Chemical Industry Association (JCIA), the American Chemistry Council (ACC), and the Centre European des Federations de L'industrie Chimique (CEFIC). Kao agrees with LRI activity initiatives and strives to contribute to the study of hypersensitivity as a member of the JCIA Science Task Force and LRI Working Group, which focuses on the study of chemical carcinogenesis, endocrine disrupters and hypersensitivity.

Worldwide situation concerning HPV and screening procedure

In 1992, the OECD (Organization for Economic Co-operation and Development) determined that it would ensure safety related to HPV (High Production Volume Chemicals).

ICCA-HPV substances

Definition: Substances whose annual production is over 1,000 tons (450 tons or 1 million pounds in the U.S.) in two or more regions from the U.S., EU and Japan

Manufacturers establish an international consortium

(Leader company selected to carry out tasks)
Confirm existing data (contents and credibility)
Preparation of initial assessment document (SIDS)

Decide the sponsor nation

(The sponsor nation explains HPV details to the OECD)
Fix agreed opinions between the sponsor nation and the consortium

Screening at the SIAM meeting by the OECD

Further survey and tests required

No additional survey currently required

OECD authorizes decision at the HPV Task Force

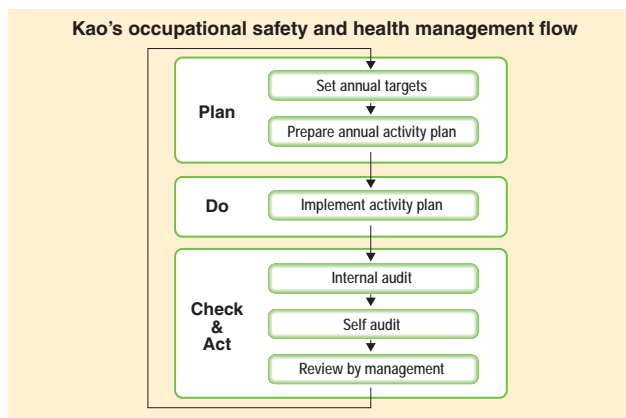
Kao's participation in HPV consortiums

- Consortium organized by the U.S. SDA (Soap and Detergent Association)
Fatty alcohol, amine oxide
- Consortium organized by U.S. Council for LAB/LAS Environmental Research (CLER)
Surfactants, sodium n-alkylbenzene sulfonate (LAS)
- Consortium studying cement dispersant
- Consortium organized by the Japan Sulfuric Acid Association
Sulfuric acid (study is complete)
- Collaboration with other companies in Japan to study two chemical substances

Activities for Occupational Safety and Disaster Prevention

Occupational Safety and Health Management System (OSHMS)

Since 2000, we have focused on establishing Kao's Occupational Safety and Health Management System (OSHMS) to further improve the efficiency of existing occupational safety and health activities. We are currently engaged in establishing an auditing system and reducing sources of potential risks through the introduction of a risk assessment system.

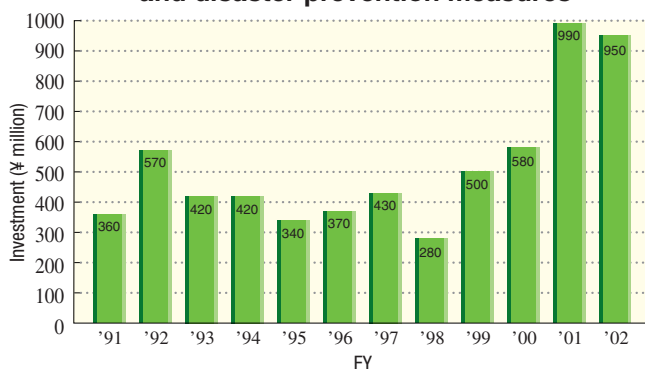


Performance of Activities

● Capital Investment

Total investment into occupational safety and health, and process safety and disaster prevention fell slightly to 950 million yen, the breakdown of which is 58% for improvement measures to occupational safety and the work environment, 24% for countermeasures against explosions, fires and leakage, 10% for countermeasures against earthquakes and other natural calamities, and 8% for others.

Trends in investment into occupational safety and disaster prevention measures

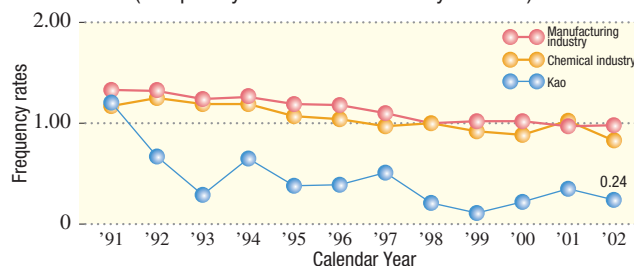


● Trends in Labor Accidents in Japan

In fiscal 2002, accidents resulting in personnel leave at the Production & Engineering Division and Research & Development Division totaled two, which resulted from an employee becoming "caught" in machinery and another falling on a step. We strive to continue to promote activities which eliminate accidents resulting in personnel leave.

Trends in accidents resulting in personnel leave in Japan

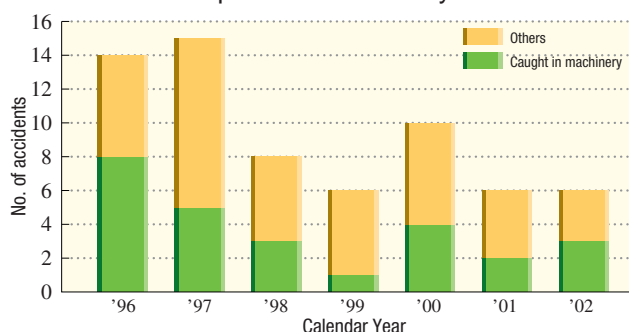
(Frequency rate of leave of 1 day or more)



* Frequency rate: number of injuries and deaths caused by accidents per one million working hours
* In 1991, Kao began an accident measure review system at the Production & Engineering Division and Research & Development Division.

Of all accidents, including those resulting in no personnel leave being required, more than half of all accidents were caused by employees being "caught" in machinery. We continue to promote company-wide risk assessments for machinery to eliminate sources of potential risks and consequently accidents.

Trends in no. of accidents at Production & Engineering and Research & Development Divisions by cause



Exchanges with Society

In addition to our consistent efforts to encourage two-way communication with consumers and customers, the company proactively conducts activities which contribute to society, recognizing that activities that enhance and improve mental well-being and protect and foster an environment which is beneficial to children and future generations, are significant roles for companies.

Activities to Foster a Natural Environment – Supporting the “Creating Forests for Everyone” campaign

Kao supports citizens’ activities through an original program organized jointly with the Urban Greenery Fund, to protect and nurture natural greenery so that people can come into close contact with nature in their living environment. Kao has taken this approach since fiscal 2000 and has supported a total of 57 citizens’ groups. In fiscal 2002, we selected 45 organizations for donation. Since 2002, Kao has affixed the “Creating Forests for Everyone Campaign Mark” on all of the company’s refill pouch products, as representative products through which we can promote our support of environmental activities.

“Creating Forests for Everyone Campaign Mark”



Refill pouch products with “Creating Forests for Everyone Campaign Mark”



Kao staff members also voluntarily participate in activities supported by the “Creating Forests for Everyone” campaign. In fiscal 2002, over 30 Kao staff members participated and interacted with other local volunteers. To foster future generations, we continue to collaborate with consumers and citizens’ groups as one united body.

• Support efforts

Through the Urban Greenery Fund, a portion of sales from Kao refill pouch products are donated to selected volunteer groups, NPOs and other organizations that conduct activities to protect and nurture forests in the community. Specific activities include preservation of trees, planting, cutting weeds, creating ponds and bird feeders, and nurturing large trees as a symbol of the community.

Location of organizations selected for donation in fiscal 2003



Activities by organization selected for donation



“Kagayaki-Iakamaru” NPO



“Creating Forests in Jindai for 22nd Century” NPO



“Creating Forests on Seashore” NPO

Exchanges with the Local Community

● Environmental Beautification and Conservation Activities in the Community

Each of Kao's plants conducts activities to beautify and conserve the environment of the community. For example, each of Kao's plants carries out cleanups regularly in the vicinity and promotes exchange with the community in its own way.

The Tochigi Plant supports the Nikko Cedar Colonnade Ownership which protects the Nikko cedar colonnade, a designated national heritage site. The Wakayama Plant carefully preserves the pine forest surrounding the plant site, which has been in existence since the Edo Era.



Nikko cedar colonnade



Pine forest surrounding the site of the Wakayama Plant

● Activities to Promote Children's Well-Being

• Distribution of "Learn about your body" CDs

Kao has prepared educational materials concerning first-time menstruation, and its employees, as volunteers, have converted these materials into CD audio format for visually impaired children. A total of 220 CDs were distributed to 71 schools for the blind, families with visually impaired children and relevant institutions nationwide throughout Japan.



<http://www.kao.co.jp/mag/laurier/e-net/startindex.html>
(currently available only in Japanese)

• Chemical experiment classes at schools

As a manufacturer of chemical products, for example, detergent which children use at home, Kao dispatches young researchers to provide touring chemical experiments at schools, with the intention of raising children's interest in chemistry. In fiscal 2002, touring chemical experiments were provided at 12 schools, including 10 elementary schools in Kuki, Saitama.



Chemical experiment class at Ota Elementary School, Kuki, Saitama

• Holding Kao Family Concerts

Kao holds concerts in designated workplace areas with the intention to provide an opportunity for children to listen to truly good music. In 2002, Kao invited Ms. Ikuyo Nakamichi, a pianist, to hold a Kao Family Concert in Sakata.



Kao Family Concert in Sakata

● Activities to Support Communities

• Operational support to Wasa Welfare Factory

Since its establishment, the Wakayama Plant has supported production activities at the Social Welfare Corporation Sumi and the Wasa Welfare Factory, both in Wakayama, for 10 years. The Wasa Welfare Factory was jointly established by the local government, Kakuya Orthopedic Hospital and Kao, with the aim of supporting physically impaired people to overcome handicap, obtain a job and be independently involved in the community. The “barrier free” workplace facilitates an easy working environment for these people. Kao has consigned the factory to fill product contents in mini bottles for traveling sets and hotel amenities.



People working in the factory



Letter of appreciation from the National Council of Social Welfare

● Kao Foundation for Arts and Science

Kao supports activities related mainly to art and culture, and science and technology. The company has donated a total of 536.25 million yen to 722 activities, up to fiscal 2002.



Award ceremony to encourage researchers

Communication

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. To achieve this, we recognize that it is very important to listen carefully to our customers and reflect such feedback in our business activities, specifically in regard to the development or improvement of even superior products. Kao's Consumer Information Center facilitates direct communication with our customers and consumers as the company's information and communication center.

The Consumer Information Center receives over 120,000 inquiries by phone, email, mail and other means every year. Each inquiry is handled quickly, accurately and professionally by Kao staff members. We transfer this valuable feedback into our extensive range of corporate activities, for example to improve products, packaging, product information and advertising.

We receive diverse inquiries other than those concerning our products. Some concern companies' unethical conduct, a subject frequently covered by the media, and some relate to the safety of cosmetics ingredients and environmental issues concerning garbage. To respond to these inquiries, we consistently make efforts to collect information based on fact and explain the background to such issues clearly. We also express Kao's approach and strive to eliminate consumers' sense of uneasiness and doubt toward the company and its products.

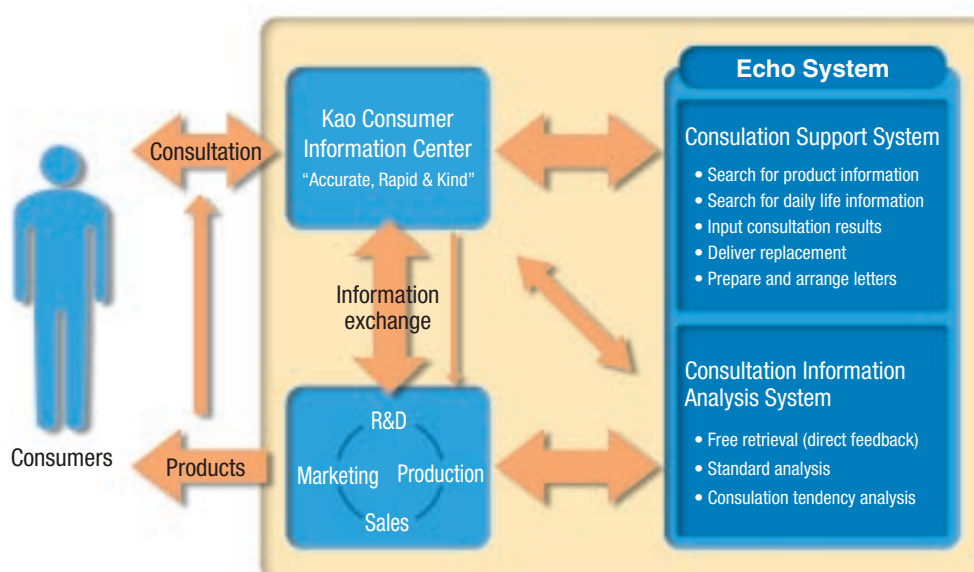
We have introduced FAQ and useful consumer information in the "Kao's Products Consultation Room" section on the company's Japanese website so that the latest information can be easily accessed.

An example of customer feedback actually being reflected in product improvements was the refill pouch of *Keeping* starch for ironing. Now the refill pouch shows a picture of the *Keeping* main container with sprayer, for easy distinction of refill products. This improvement has been adopted to effectively prevent mismatching the refill pouch and main container, as an increasing number of different refill products are available on the market.

The company also utilizes the Kao Echo System as a tool to support overall activities carried out by the Consumer Information Center and to share customer feedback among Kao's staff members. This system consists of two functions: 1) "Inquiry Response Supporting Function" which enables quick reference of product information for staff members of the Center so that they can swiftly and accurately respond to customers and 2) "Inquiry Analysis Function" which analyzes specific information related to inquiries input in the system so that the analysis can be used in diverse business activities such as product development. The system is upgraded every year, for example adding an email function to accommodate the internet society.



Refill pouch of *Keeping* starch for ironing



Data of Environmental Burden Loaded by Plant

Tables below specify emission of dioxin if any and substances subject to the PRTR law whose emission was over one ton.

Wakayama Plant

1334 Minato, Wakayama-shi, Wakayama 640-8580 Japan Tel: +81-73-423-8151

● Description of business

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

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	654,953	518,536	561,000	566,064	607,034
CO ₂ emission	298,104	292,826	252,265	237,202	234,768
Waste discharged	8,111	8,070	9,644	10,170	9,674
Final disposal for landfill	3,456	2,824	3,009	3,027	2,225
SO _x emission	33	35	27	23	26
NO _x emission	400	352	286	287	335
COD emission	64	80	79	70	66

Unit: tons

Emission of substances subject to the PRTR law (FY2002)				
Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
179	Dioxin	(mg)	6.5	0.0

Tokyo Plant

2-1-3 Bunka, Sumida-ku, Tokyo 131-8501 Japan Tel: +81-3-5630-9000

● Description of business

Production of prestige cosmetics; research for commercialization

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	15,344	4,835	5,221	4,870	4,872
CO ₂ emission	13,033	13,454	12,192	11,557	11,459
Waste discharged	1,421	1,384	2,141	1,757	1,739
Final disposal for landfill	100	651	161	75	47
SO _x emission	1>	1>	1>	1>	1>
NO _x emission	1>	1>	1>	1>	1>
COD emission	1>	1>	1>	1>	1>

Unit: tons

Emission of substances subject to the PRTR law (FY2002)				
Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
There are no facilities subject to the special law concerning countermeasures against dioxin.				

Because effluence containing COD drains to public sewage, data for COD reflects subtraction at the sewage treatment plant based on the subtraction rate.

Sakata Plant

2-1-18 Ohama, Sakata-shi, Yamagata 998-0064 Japan Tel:+81-234-34-5511

● Description of business

Production of pore packs, facial care sheets and bath additives

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	91,580	85,608	72,796	35,180	19,166
CO ₂ emission	23,500	22,830	21,614	13,761	8,637
Waste discharged	3,402	2,900	1,860	1,647	1,407
Final disposal for landfill	359	208	258	219	269
SO _x emission	51	51	43	17	5
NO _x emission	43	37	40	45	53
COD emission	2	2	1	1	1

Unit: tons

Emission of substances subject to the PRTR law (FY2002)				
Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
179	Dioxin	(mg)	6.5	0.0

Kawasaki Plant

1-2 Ukishima-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa 210-0862 Japan Tel:+81-44-266-3231

● Description of business

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

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	341,726	368,151	368,760	391,789	397,450
CO ₂ emission	52,258	61,923	64,086	71,650	74,090
Waste discharged	1,979	2,655	4,560	19,438	5,394
Final disposal for landfill	50	0	132	760	215
SO _x emission	1>	1>	1>	1>	1
NO _x emission	18	19	11	17	23
COD emission	3	4	4	3	2

Unit: tons

Emission of substances subject to the PRTR law (FY2002)				
Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
179	Dioxin	(mg)	4.1	0.0

Tochigi Plant

2606 Akabane, Ichikai-machi, Haga-gun, Tochigi 321-3497 Japan Tel:+81-285-68-7000

● Description of business

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

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	63,859	54,484	63,153	54,992	55,152
CO ₂ emission	58,459	54,292	54,296	52,499	53,490
Waste discharged	5,570	3,998	3,902	3,714	4,834
Final disposal for landfill	619	526	256	184	86
SO _x emission	6	8	9	18	16
NO _x emission	366	319	300	344	437
COD emission	2	1	1	2	1

Emission of substances subject to the PRTR law (FY2002)

Cabinet order No.	Name of substance	(Unit)	Air	Public water
227	Toluene	(ton)	1.9	0.0
179	Dioxin	(mg)	3.8	0.1

Kashima Plant

20 Higashi-fukashiba, Kamisu-cho, Kashima-gun, Ibaraki 314-0103 Japan Tel:+81-299-93-8311

● Description of business

Production of healthy cooking oil, cooking oil, surfactants, fatty chemicals

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	165,700	156,014	167,302	164,289	182,279
CO ₂ emission	100,754	108,737	109,080	112,699	116,110
Waste discharged	4,575	4,425	3,734	4,686	4,423
Final disposal for landfill	101	63	89	162	227
SO _x emission	6	12	14	14	21
NO _x emission	59	71	92	78	75
COD emission	16	14	15	13	12

Emission of substances subject to the PRTR law (FY2002)

Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
There are no facilities subject to the special law concerning countermeasures against dioxin.				

Because effluence containing COD drains to public sewage, data for COD reflects subtraction at the sewage treatment plant based on the subtraction rate.

Toyohashi Plant

4-51 Akemi-cho, Toyohashi-shi, Aichi 441-8074 Japan Tel:+81-532-23-2711

● Description of business

Production of hair color, personal care products for men, hair care products, Nivea-Kao products, binder for casting

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	31,784	33,734	39,863	33,447	35,803
CO ₂ emission	9,747	9,344	9,234	9,115	9,157
Waste discharged	5,266	4,237	2,691	2,177	1,611
Final disposal for landfill	535	128	404	414	106
SO _x emission	1	1	1	2	1
NO _x emission	46	37	33	33	29
COD emission	1>	1>	1>	1>	1>

Emission of substances subject to the PRTR law (FY2002)

Cabinet order No.	Name of substance	(Unit)	Air	Public water
There was no substance subject to the PRTR law whose emission was over 1 ton.				
179	Dioxin	(mg)	5.6	0.0

Ehime Sanitary Products Company, Limited

6-3 Hiuchi, Saijo-shi, Ehime 793-0003 Japan Tel:+81-897-55-1888

● Description of business

Production of disposable diapers, sanitary napkins, paper cleaning products

Classification	FY				
	1998	1999	2000	2001	2002
Total production output	39,689	37,131	41,076	35,305	40,437
CO ₂ emission	25,940	25,499	25,357	24,688	22,976
Waste discharged	2,057	1,384	1,225	970	1,540
Final disposal for landfill	218	180	155	187	159
SO _x emission	4	5	5	5	1>
NO _x emission	128	156	152	84	5
COD emission	—	—	—	—	—

Emission of substances subject to the PRTR law (FY2002)

Cabinet order No.	Name of substance	(Unit)	Air	Public water
227	Toluene	(ton)	11.0	0.0
179	Dioxin	(mg)	0.0	0.0



レスポンシブル・ケア

花王株式会社

代表取締役 兼社長執行役員 後藤 卓也 殿

「環境・安全報告書 2003年版」

第三者検証 意見書

2003年6月11日

検証評議会議長

山本 明夫

レスポンシブル・ケア検証センター長

田中 康夫

■検証の目的

レスポンシブル・ケア報告書検証は、花王株式会社が作成した「環境・安全報告書 2003年版」(以後、報告書と略す)を対象として、下記の事項について、化学業界の専門家としての意見を表明することを目的としています。

- 1) パフォーマンス指標(数値)の算出・集計方法の適切性・合理性、並びに数値の正確性
- 2) パフォーマンス指標(数値)以外の記載情報の正確性
- 3) レスポンシブル・ケア活動の評価
- 4) 報告書の特徴

■検証の手順

- ・本社において、各サイト(事業所、工場)から報告される記載情報及びパフォーマンス指標の集計・編集方法を各業務責任者及び作成責任者への質問、並びに資料提示・説明により確認。
- ・サイトにおいて、本社に報告する記載情報の事実及びパフォーマンス指標の算出・集計方法の調査並びに数値の正確性に関する調査を各業務責任者及び作成責任者への質問、並びに資料提示・説明により実施。なお、サイトとしては、和歌山工場及び川崎工場を選定。
- ・パフォーマンス指標の検証についてはサンプリング手法を使用。

■意見

- 1) パフォーマンス指標(数値)の算出・集計方法の適切性・合理性、並びに数値の正確性
 - ・パフォーマンス指標は、本社で統一的に規定した様式並びに記載要領に従い、本社及びサイトにおいて、合理的かつ適切に算出・集計され、開示されています。
 - ・環境会計の経済効果において、計上すべき費用節減項目の分類で見解の相違があり、修正を求めました。現報告書では、修正されています。
- 2) パフォーマンス指標(数値)以外の記載情報の正確性
 - ・報告書に記載された情報は、提示された証拠資料により正確であることが確認しました。原案段階では文章の分かり易さに関し、若干指摘事項が認められましたが、現報告書では修正されており、現在修正すべき重要な事項は、特に認められません。
- 3) レスポンシブル・ケア活動の評価
 - ・当会社の基幹原料である高級アルコールの製造方法を環境負荷の少ないプロセスに転換するなどレスポンシブル・ケア活動を確実に実施し、二酸化炭素、廃棄物、化学物質等の排出量の削減について効果をあげていることを評価します。
 - ・和歌山工場では、複合発電の拡充、重油から天然ガスへの燃料転換、省エネ機器の導入などにより、日本経済新聞の2002年「優秀先端事業所賞」を受賞しており、評価します。
- 4) 報告書の特徴
 - ・ダイオキシンのサイト別の排出量、土壌汚染状況、労働災害の内容等を積極的に公表されていることを評価します。
 - ・廃棄物の処理の流れ図において、数値を記載し、昨年度と比較して理解しやすくなっていることを評価します。

以上

Written Opinions Concerning Third Party Verification of “Environment, Safety and Health Report 2003”

To: Mr. Takuya Goto, President & CEO
Kao Corporation

June 11, 2003

Akio Yamamoto
Chairperson, Verification Committee
Yasuo Tanaka
Chief, Responsible Care Verification Center

■ Purpose and scope of verification

The purpose of verifying the “Environment, Safety and Health Report 2003,” prepared by Kao Corporation (hereafter called “Report”), is to clarify the below-mentioned points and express opinions from the standpoint of experts in the chemical industry:

- 1) Appropriateness and rationality of methods used to calculate and compile performance indices (numeric values), accuracy of numeric values
- 2) Accuracy of information other than performance indices (numeric values)
- 3) Evaluation of Responsible Care activities
- 4) Features of the Report

■ Verification procedure

- In the company’s Head Office, the Center verified methods to compile and edit performance indices and other relevant information reported by each designated site (plant or office), based on documentation presented and interviews with personnel responsible for each task and those who prepared the Report.
- At each designated site, the Center verified accuracy of information, methods used to calculate and compile performance indices as well as numeric values, which had been reported to the Head Office, based on documentation presented and interviews with personnel responsible for each task and those who prepared the Report. The Center designated the company’s Wakayama Plant and Kawasaki Plant.
- A sampling method was applied for the verification method of performance indices.

■ Opinions

- 1) Appropriateness and rationality of methods used to calculate and compile performance indices (numeric values), accuracy of numeric values
 - The Center confirmed that performance indices in the Report had been calculated, compiled and disclosed in a rational and appropriate fashion in the company’s Head Office and at each site. Forms and methods used for calculation and compilation are specifically regulated by the Head Office.
 - As there was a divergence in views for classification of cost reduction items to be posted as the economic effect on the environmental accounting, the Center sought for revision and confirmed such revision had been made in the Report.
- 2) Accuracy of information other than performance indices (numeric values)
 - The Center confirmed accuracy of information specified in the Report based on documentation presented. Although the Center pointed out some confusing descriptions in the Report at the preliminary stage, such parts have been revised. Therefore, there is no particular description requested to be amended.
- 3) Evaluation of Responsible Care activities
 - The Center highly evaluates that the company effectively reduced CO₂ emission, waste disposal and discharge of chemical substances through steady RC activities, for example by transferring the manufacturing processes for fatty alcohol, the company’s key raw material, to those with less environmental impact.
 - The Center also recognizes that the Wakayama Plant received an “Excellent Advanced Plant Award” in fiscal 2002 from Nihon Keizai Shimbun, Inc., a leading Japanese economic newspaper company due to its efforts to expand co-generation facilities, to changeover fuel from heavy oil to natural gas and to introduce energy saving machinery.
- 4) Features of the Report
 - The Center evaluates the company’s proactive disclosure of dioxin emission by site, soil contamination level and specific labor accidents.
 - The Center evaluates that the waste treatment flow shows numeric values and is easier to understand in comparison with the previous year’s version.

Terms Used in the Environment, Safety and Health Report 2003

Term	Description
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 conserve the environment, provide safety and health and that incorporate a commitment to the public in their management policy to provide and improve environmental conservation, safety and health over the entire life cycle of chemical products, including the development, manufacture, distribution, consumption, and final disposal of chemical products." The Responsible Care philosophy in Japan was set up by the Japan Chemical Industry Association, and in 1995 the Japan Responsible Care Council (JRCC) was established. Kao has been an active JRCC member since its establishment. As of April 2003, JRCC consists of 113 company members.
PDCA cycle	The Plan, Do, Check and Act (PDCA) cycle is the flow of operations that involves four activities: to "plan" short- and mid-term goals, to "do" or conduct activities according to these plans, based on the company's environmental policy to continuously improve environmental conservation activities, then to "check" the results of these activities, and finally to "act" to make further improvements. This cyclical flow of activities is called the PDCA cycle.
Environmental accounting	This is a system for acknowledging, analyzing and publishing the effects (expressed quantitatively as a monetary or physical unit), achieved as a result of environmental conservation investment and activities within business operations. This aim is for the company to efficiently and effectively promote environmental conservation activities while maintaining a good relationship with society and managing sustainable growth. In March 2002, the Ministry of the Environment issued guidelines on how to compile data for environmental accounting.
ISO 14000 series	This is the abbreviation for the international standard on environmental management systems set 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."
Life Cycle Assessment (LCA)	A method which comprehensively analyzes and assesses the environmental burden during the entire life cycle of products, i.e. procurement of resources, production, consumption and disposal. Using this method, we specify the input of raw materials and energy, as well as the output of harmful substances and waste. This also enables clear assessments regarding environmental impact.
3Rs	Reduce, Reuse and Recycle. Precisely, it means to reduce the amount of raw materials used and waste disposal, to reuse containers and their functional parts and recycle materials used into raw materials.
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 in terms of cubic content, as products. It obliges consumers to sort their waste, local authorities to collect waste according to classifications, and manufacturers to recycle waste and use in products. When the law was initially introduced in 1997, it was limited only to glass and PET bottles. From April 2000, it was fully implemented to include paper and plastic.
Law for Promotion of Effective Utilization of Resources (Revised Waste Management Law)	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.
Co-generation	A system that uses utility gas, which has a low CO ₂ 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.
Unit value added index	The 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.
Recyclable energy	Sunlight, water power, wind power and other sources of energy that are both abundant on earth and clean, with less of a burden on the environment.
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 as a source of heat at the company's own plants or other companies' plants.
SOx, NOx	SOx is a generic term for SO ₂ , SO ₃ or acid mist in sulfur oxide, which is generated from burning chemical fuels containing sulfur. NOx is a generic term for NO or NO ₂ in nitrogenous substance, which is generated from burning fuels.
COD (Chemical Oxygen Demand)	A value for measuring organic matter contained in water, into which effluence flows. It indicates the amount of oxygen consumed when an oxidizer (potassium permanganate, potassium bichromate) decomposes organic matter in water. The unit used is mg/L or ppm. The larger the figure, the more organic matter there is contained in the water, and the higher the level of pollution.
PRTR	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 companies.
MSDS	Abbreviation for Material Safety Data Sheet. To prevent accidents related to chemical products, the MSDS includes data relating to safety management and is distributed for each product from the supplier to the user or company that handles the products.
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.

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