



Responsible Care



UBE GROUP

# CSR Report 2005

Working for the Economy, Society and Environment

UBE INDUSTRIES, LTD.

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**Excellent Results under the New Medium-Term Management Plan**

Business results expanded in fiscal 2004, led by the chemical business. There was major growth in both revenues and income, and the dividend was reinstated.



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**CSR Activities Launched**

In July 2005, UBE formulated a basic CSR policy and established an implementation structure. These moves marked the start of full-scale CSR initiatives by UBE.

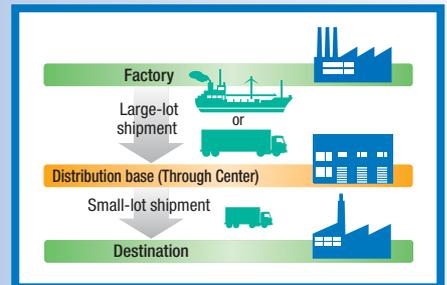


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**Green Distribution**

UBE worked to improve the efficiency of its transportation operations to reduce costs, and to contribute to the measures of global warming. It sets specific targets for the reduction of CO<sub>2</sub> emissions.



**Environment and Safety Inspections**

Major UBE Group companies are also subject to inspections by the Group Environment and Safety Committee, which is chaired by the President of UBE. In fiscal 2005, the facilities of Ube Ammonia Industry, Ltd. were inspected.



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### We are continuing to endeavor to contribute to sustainable social development.



We are proud to deliver this CSR report centering on the UBE Group's economic, social and environmental initiatives in fiscal 2004. I should like to begin by reiterating our continuing determination to contribute to sustainable social development.

There is growing public interest in the concept of corporate social responsibility (CSR). In July 2005, the UBE Group adopted its CSR Basic Policy and a CSR Promotion System. Through these moves we have crystallized our corporate stance toward social responsibility, which is based on an approach to business shaped by the triple perspectives of the economy, society and the environment. As part of our activities in these areas, we have expanded the format of the Responsible Care Report, which we published through last year, to create this new CSR Report, which describes our activities from the economic, social and environmental perspectives.

With respect to our economic perspective, in 2004, UBE initiated a new Medium-Term Management Plan, "New 21 • UBE Plan II," which has as its keywords "Speed and Reliability," and which is directed toward continuing the implementation of the policies of the previous Medium-Term Management Plan.

With respect to our social perspective, we believe that corporate governance and compliance are vital to any company that aims to achieve harmonious coexistence with society. In addition to the development and improvement of our systems in these areas, we are also working to build awareness of compliance throughout our organization. Another priority with major implications for corporate activities is information security. We are formulating and implementing policies designed to provide appropriate protection for personal information and customer information. The UBE Group remains firmly committed to the provision of good working environments for its employees, and to the continuation of its social contribution activities.

With respect to the environmental perspective, we actively work for the policy of responsible care activities, holding as a basic tenet of its business philosophy that its products will support the environment, safety and health at all stages of their life-cycle, from product development and manufacture through distribution, use, consumption and disposal. Our efforts to con-

tribute to a recycling-based society and respond to global warming problems have focused on curtailing the release of substances that negatively impact the environment, through biomass power generation and the use of a wide range of waste products as alternative fuels for cement production. Through initiatives such as these we are helping to protect the global environment while contributing to the development of the sustainable society.

We have revised our basic Environmental and Safety Principles as they relate to facility safety. This step was taken to provide a clearer expression of our philosophy in this area, which is that facility safety is a fundamental imperative for any manufacturing company and is a responsibility that rests with the highest level of management.

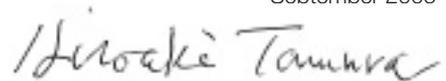
The accident that occurred in nylon manufacturing facilities at the UBE Chemical Factory last July caused serious problems and disruption for local residents, government officials and users. I wish to express our profound regret, and to reaffirm our determination to prevent recurrences by strengthening our management systems and making fundamental improvements to our facilities.

Since October 2004, Ube Machinery Corporation, Ltd., a member of the UBE Group, has been under investigation for suspected violations of the Antimonopoly Act. It is extremely regrettable that an UBE Group company should find itself in this situation.

Asbestos-related health problems have become the focus of public concern recently. The UBE Group takes this issue very seriously and is determined to respond appropriately.

I hope that this report will help all stakeholders to understand the responsible care initiatives of the UBE Group in relation to the environment, health and safety, as well as the economic and social aspects of our activities. We look forward to your continuing support and cooperation in these efforts.

September 2005



HIROAKI TAMURA  
President and Group CEO

# Working for the environment with Wings of These are our DNA driving our success.

(From the UBE Group's corporate vision)

## A new high-chlorine by-pass facility installed at the Kanda Cement Factory will allow increased use of waste products with a high chlorine content.

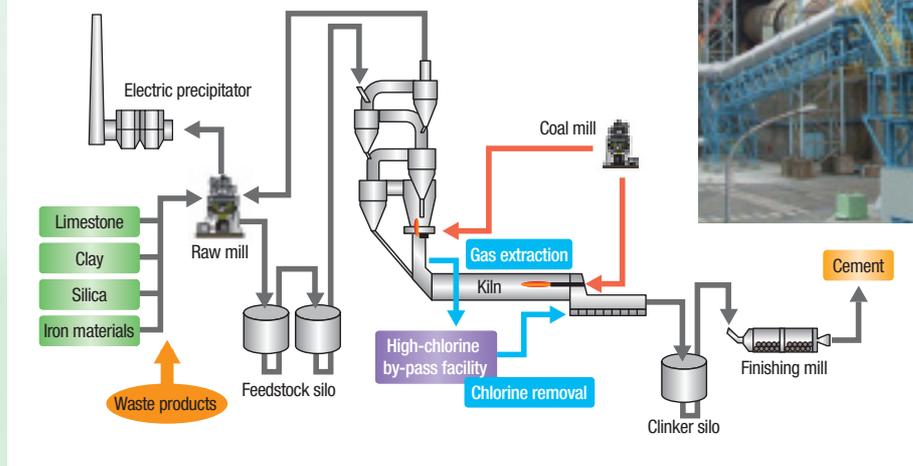
Waste products are increasingly being recycled as raw materials and fuels for cement production. However, waste includes a variety of substances, some of which may have an adverse effect on the quality of the cement or the reliable operation of manufacturing processes.

Chlorine is especially important. Because chlorine causes corro-



High-chlorine by-pass facility

### Flow Chart of High-chlorine By-pass Facility



tion of reinforcing steel in concrete buildings, there are restrictions on the level of chlorine in cement. As a result, it was almost impossible to use waste products with a high

chlorine content, such as sludge and ash from the incineration of household garbage.

To overcome this problem, a high-chlorine by-pass facility capable of removing large amounts of chlorine has been installed at the Kanda Cement Factory. The by-pass system is connected to a kiln, which is used to produce clinkers as an intermediate stage in the cement production process. For this process, known as "calcination," the materials are heated to over 1,450 °C, causing the chlorine to be emitted in gaseous form. The by-pass system extracts this gas from the point of highest concentration and eliminates it from the cement manufacturing process. The new system has several times more capacity than earlier chlorine by-pass systems.

With the installation of this system, it has become possible to recycle around 80,000 tons of high-chlorine materials annually, including sludge and ash from incinerated household garbage. This innovation will further increase the UBE Group's contribution to the sustainable society.

### Message from an Employee



Vice Factory Manager, Kanda Cement Factory  
**Mamoru Matsuoka**

I have been involved in the construction and operation of this facility from the planning stage. The planning process included prior assessments, with particular emphasis on safety and environmental aspects.

This work was reflected in the facility itself, and in our training procedures. This is Japan's biggest facility of its type in terms of gas extraction and chlorine removal capacity, and it has been a challenging project. However, the system is now operating smoothly.

We aim to contribute to global environmental preservation and the reduction of manufacturing costs by using this system to its full potential to maximize the amount of waste materials used at the Kanda Cement Factory.

# Technology and a Spirit of Innovation.

The UBE Group is making a wide-ranging contribution to society by supplying environment-friendly products and technology. Innovations include a high-chlorine by-pass facility that allows increased use of waste materials as cement raw materials, and safer water purification systems.

## A photocatalytic fiber material and water purification system developed by Ube Industries won the Minister of Environment Prize in the Fourth Annual Green Sustainable Chemistry (GSC)<sup>\*1</sup> Awards presented by the Green Sustainable Chemistry Network (GSCN).

The Functional Materials Division of UBE Research Laboratory has developed the world's first high-strength photocatalytic fiber utilizing surface gradient structures. In February 2005, this material and a water purification system in which it is used were selected for the Minister of Environment Prize in the Fourth Annual Green Sustainable Chemistry (GSC) Awards presented by the Green Sustainable Chemistry Network (GSCN). The award was in

recognition of the system's major contribution to the environment and human health and safety as a safe alternative to water sterilization using chlorine, which is harmful to human health.

down their cells into carbon dioxide and water without the need for chemicals. It has already gained an excellent reputation in Japan and overseas as a revolutionary bactericidal and purification system for spas, pools and other facilities.

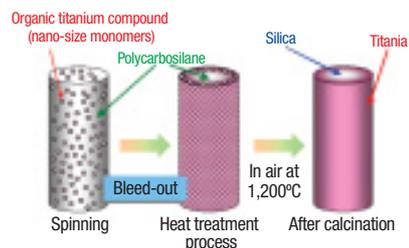
Tests have verified the effectiveness of this technology against materials that are regarded as difficult to break down, including highly toxic dioxins and certain types of bacteria and viruses. These are all broken down into carbon dioxide and water. In addition to its use as a bactericidal and algicidal system for fish farms, aquariums and cooling towers, this technology is also being used for a wide range of industrial applications in the fields of water purification and wastewater treatment. In the future it is also likely to be used for drinking water.

(A paper concerning this fiber was published in the March 2002 edition of the English-language scientific journal *Nature*.)

Water purification equipment with a photocatalytic fiber unit



### Synthesis Process for High-Strength Photocatalytic Fiber



Photocatalysts have been the focus of interest for around 30 years. The technology has been used to develop numerous products for use in such fields as sterilization, odor removal and air cleaning. In the past such products have been manufactured mainly by coating with a powdered photocatalytic material (titanium oxide powders). However, there were many barriers to the development of full-scale water purification systems, including the tendency of the photocatalytic layer to separate in flowing water.

The UBE Research Laboratory sought to develop materials and a system that would combine durability with photocatalytic activity. This work resulted in the creation of the world's first high-strength photocatalytic fiber utilizing nanolevel surface gradient structures, which effectively oxidize and break down all organic substances through irradiation with light. The UBE Group began to market this technology as the Aquasolution high-performance water purification system in May 2002.

Aquasolution eliminates residual microbes in swimming pools, including the *Legionella* and *E. Coli* bacteria and completely breaks

### Message from an Employee



General Manager,  
Functional Materials Division  
UBE Research Laboratory  
**Toshihiro Ishikawa**

How many people are aware of the serious health effects of chlorine, which is widely used in water purification systems? When used excessively, chlorine accelerates aging and aggravates various conditions, including atopic dermatitis. Our aim in developing a water purification system that does not rely on chemicals is to contribute to the creation of a safe and healthy social environment by halting the global spread of water contamination.

### GLOSSARY

<sup>\*1</sup> **Green Sustainable Chemistry (GSC)** : GSC is a global initiative to raise awareness of social responsibility among people and organizations that work with chemicals, and to encourage contributions to the environment and human health and safety and the development of the sustainable society through advances in chemical technology. In Japan, the Green Sustainable Chemistry Network (GSCN) was established in March 2000 to provide strong and effective support for GSC activities. It is a voluntary organization made up of 24 organizations, including academic and industry groups working in chemistry-related fields. The GSCN introduced the GSC Awards in 2001. The Minister of Environment Prize is given in recognition of achievements that contribute to a general reduction in environmental loads.

We will strive to improve our corporate value by achieving continued improvement in earnings while maintaining a sound financial structure.

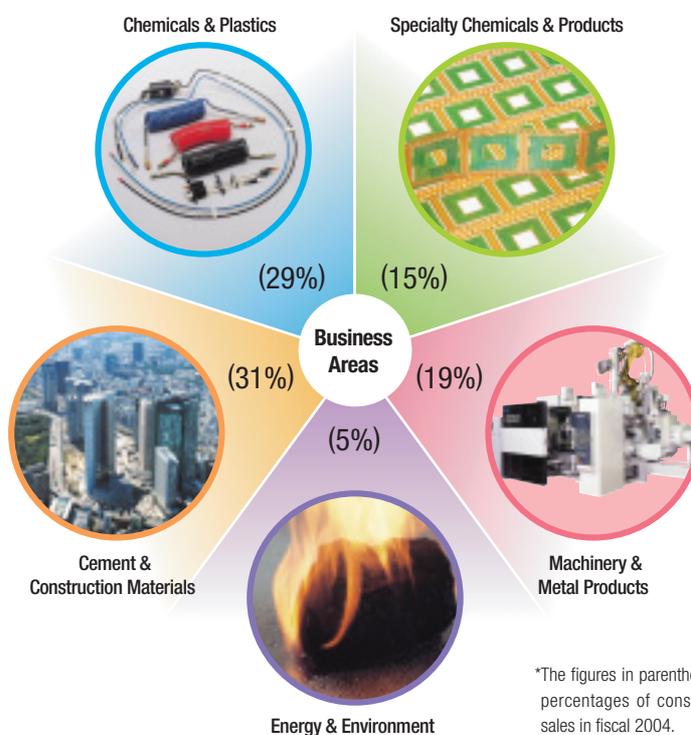
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## Corporate Profile

■ Company Name	Ube Industries, Ltd.
■ Founded	June 1897
■ Consolidated	March 1942
■ President and Group CEO	Hiroaki Tamura
■ Capital	¥48.5 billion (as of March 31, 2005)
■ Sales (Consolidated)	¥562.7 billion (Year ended March 31, 2005)
■ Employees (Consolidated)	11,074 (as of March 31, 2005)
■ Website	http://www.ube.co.jp

The history of the UBE\*<sup>1</sup> Group\*<sup>2</sup> began over a century ago with the establishment of Okinoyama Coal Mine to develop a coal-field in Ube, Yamaguchi Prefecture. Dedicated to growth through harmonious coexistence and shared prosperity with local communities, UBE built industrial activities that would allow it to generate infinite value from the finite resources of the coal-field through the creation of new business activities to meet the changing needs of society.

Today the UBE Group is globally active in five business segments and is working to build management autonomy in each of these areas.



### Major Products by Segment\*<sup>3</sup>

Chemicals & Plastics	Caprolactam, Nylon resins, Industrial chemicals, Synthetic rubber
Specialty Chemicals & Products	Functional materials, Fine chemicals, Pharmaceuticals
Cement & Construction Materials	Cement, Clinkers, Ready-mixed Concrete, Construction materials
Machinery & Metal Products	Industrial machinery, Aluminum wheels
Energy & Environment	Coal, Electric power, Environment-related products

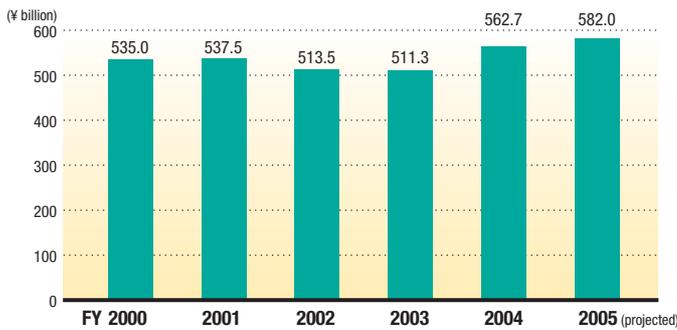
### GLOSSARY

\*<sup>1</sup> UBE: Ube Industries, Ltd. (non-consolidated)  
 \*<sup>2</sup> UBE Group: 169 group companies, including Ube Industries, Ltd. However, data on pages other than this one refer to 12 companies, including Ube Industries, Ltd. (See "Editorial Policy" on p47 for reference.)  
 \*<sup>3</sup> Segment: Category of Operations. UBE Group presently recognizes six categories of operations for which profit and loss are accounted for individually: Chemicals & Plastics, Specialty Chemicals & Products, Energy & Environment, Cement & Construction Materials, Machinery and Metal Products, and Others. However, on all pages except p4-5, the listed data for Chemicals & Plastics and Specialty Chemicals & Products are combined.

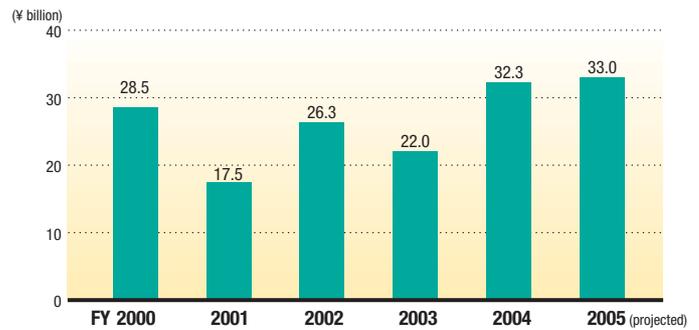
# Consolidated Financial Data

Business performance widely expanded for the year ended March 31, 2005, led by the Chemicals business. Net sales increased by 10.0%, operating income by 46.8%, and ordinary income by 56.3% compared with the previous fiscal year. Further growth in revenues and income is predicted for the year ending March 31, 2006.

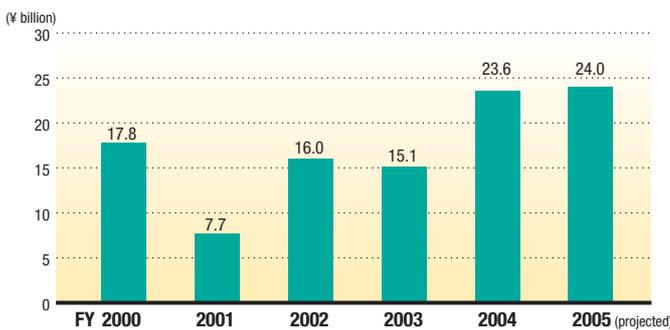
## Net Sales



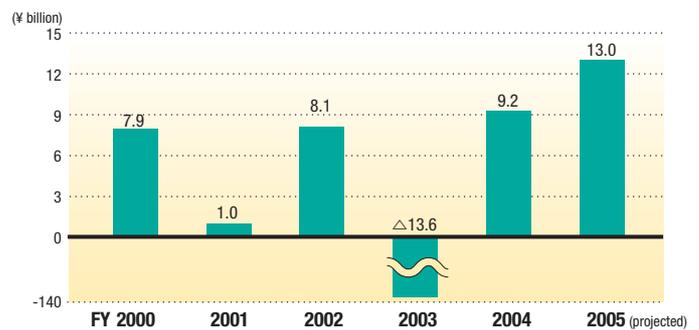
## Operating Income



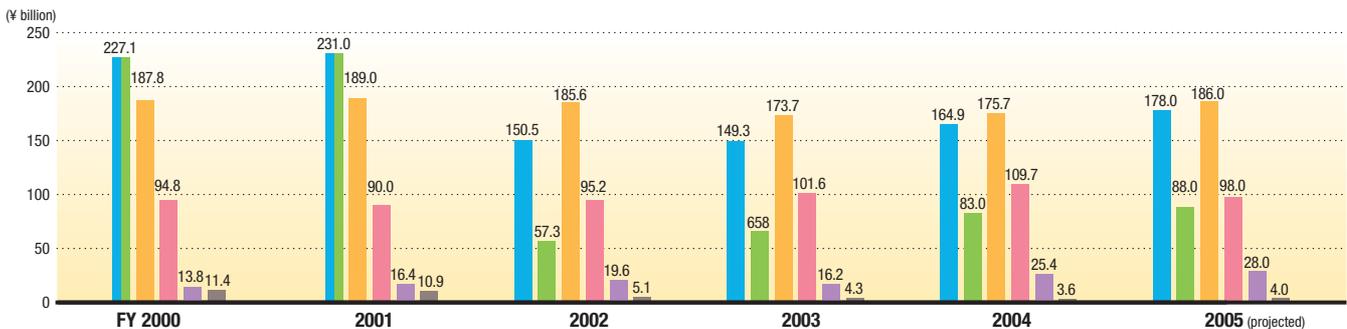
## Ordinary Income



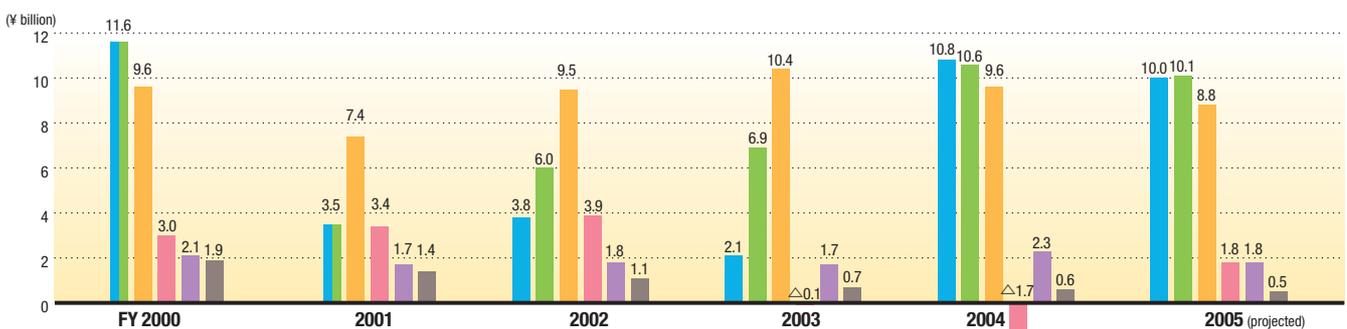
## Net Income



## Net Sales by Segment



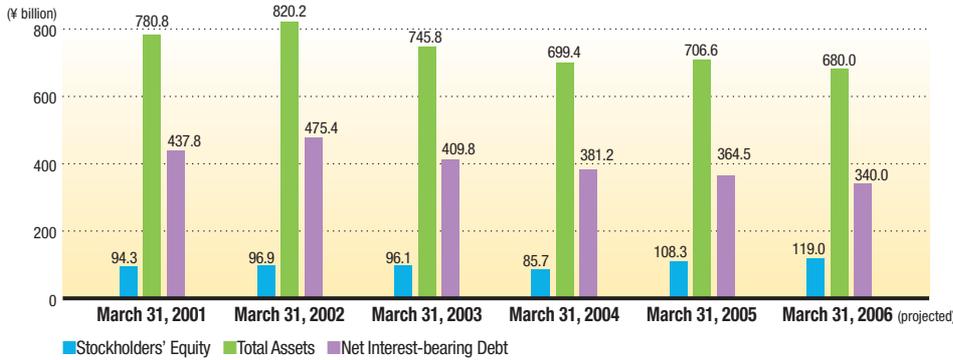
## Operating Income by Segment



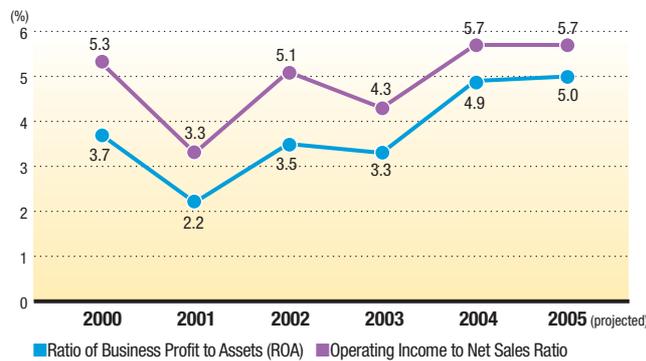
Legend: Chemicals & Plastics (Blue), Specialty Chemicals & Products (Green), Cement & Construction Materials (Orange), Machinery & Metal Products (Pink), Energy & Environment Division (Purple), Others (Grey).

\*For fiscal year 2000 and 2001, "Chemicals & Plastics" and "Specialty Chemicals & Products" are combined.

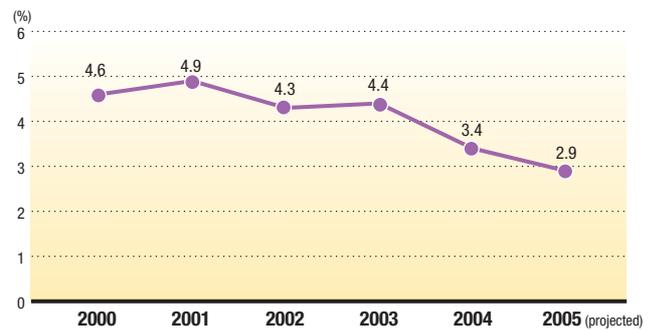
Stockholders' Equity/Total Assets/Net Interest-bearing Debt<sup>\*1</sup>



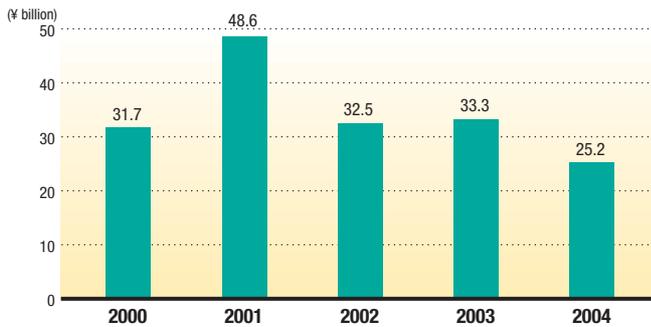
Ratio of Business Profit to Assets (ROA)<sup>\*2</sup> / Operating Income to Net Sales Ratio



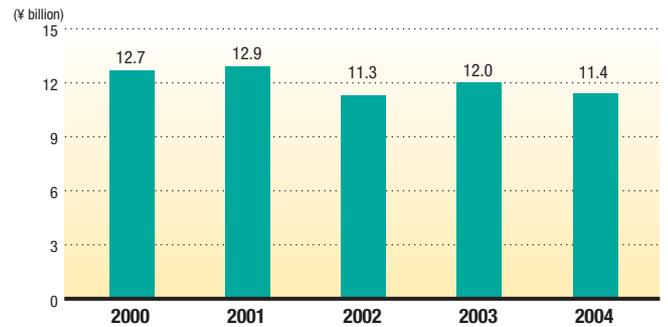
Net D/E Ratio<sup>\*3</sup>



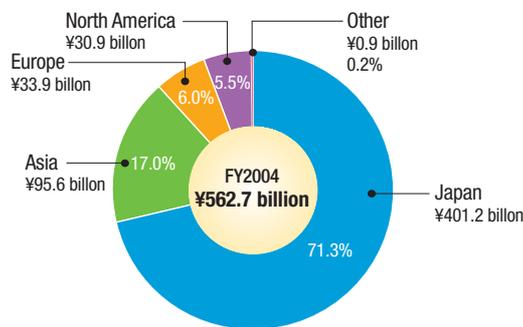
Capital Expenditure



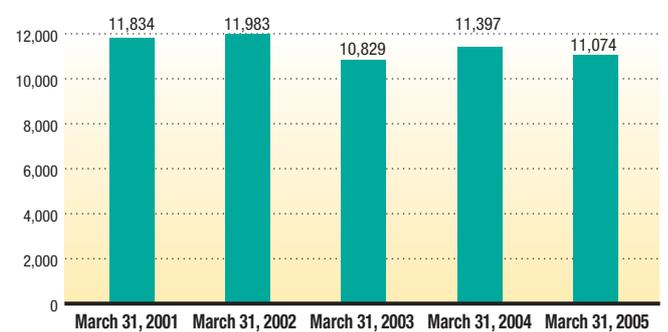
Research and Development Expenditure



Net Sales by Region



Number of Employees



GLOSSARY

<sup>\*1</sup> Net Interest-bearing Debt: Interest-bearing debt – cash and cash equivalents  
<sup>\*2</sup> Return on Assets: (Operating income + interest income + dividend income + investment profit and loss by equity method)/Total assets  
<sup>\*3</sup> Net D/E ratio: Net interest-bearing debt/Stockholders' equity

# New Medium-Term Management Plan of the “New 21•UBE Plan II”

Fiscal 2004 was the first year of the UBE Group’s new Medium-Term Management Plan, New 21•UBE Plan II. This plan builds on the achievements of the previous medium-term plan, New 21•UBE Plan, which covered from fiscal 2001 to fiscal 2003.

- Term of plan:** Fiscal 2004 to 2006 (three years)
- Concept:** Continuation of the developments of the previous Medium-Term Management Plan, elimination of debt, expansion of business and establishment of growth trajectory for success.
- Key words:** “Speed and Trust”  
By increasing the speed of PDCA cycles, business and management targets will be achieved sooner and stakeholders\*1 trust will increase.
- Key issues:**
  - Strengthening and expanding the Group’s business profitability
  - Core businesses:** expand operations by concentrating management resources while ensuring that we reap the returns of past investments.
  - Fundamental businesses:** generate stable cash flow through ongoing restructuring and cost-reduction efforts, thereby strengthening our earnings base.
  - Continuing work to improve the financial structure
  - The plan calls for maximizing operating income while holding down capital investment, thereby creating free cash flow\*2 to reduce net interest-bearing debt by ¥31 billion. For this reason, capital investments for the coming three years will be limited to within 80% of amortization and depreciation.**
- Numerical Targets and Progress :**

Three indicators have been selected as representing the results of financial restructuring and earnings restructuring. A range of measures are currently being studied and implemented with the aim of reaching these goals a year ahead of scheduled.

Item	Unit	Fiscal 2004 Actual	Fiscal 2005 Forecast	Fiscal 2006 Target
Net Debt/Equity Ratio	Times	3.4	2.9	Under 3.0
Return on assets (ROA*3)	%	4.9	5.0	5.0 or above
Operating margin	%	5.7	5.7	6.0 or above

## Message from an Employee



Accounting Management Group Leader/Corporate Planning & Administration Office/Planning and Accounting Dept.  
**Setsurou Miyake**

### Toward Strengthening Our Earning Base

The key words for the UBE Group’s new Medium-Term Management Plan, New 21•UBE Plan II, are “Speed” and “Trust” We are working to accelerate the PDCA cycle, and to earn the trust of stockholders and other stakeholders by ensuring that we achieve the management targets that we have publicly pledged. In the first fiscal year of the plan we exceeded our performance targets. In the second fiscal year, fiscal 2005,

we aim to achieve even greater acceleration so that we can achieve our targets a year ahead of schedule. This means it is more important than ever to speed up the PDCA cycle, through which we analyze and assess our progress under the plan and take appropriate action. We are also reviewing our business portfolio in preparation for the next Medium-Term Plan. Our aim is to establish clear strategic directions that will allow the UBE Group to strengthen its earning base.

## GLOSSARY

- \*1 **Stakeholders:** Not only associates of the Company directly affected by performance, such as employees, stockholders and customers, but also regional communities, governments, mass communications, and all entities and individuals influenced by the actions of the Group in society.
- \*2 **Free cash flows:** Refers to cash flows from operating activities minus cash consumed by operations (cash flows from investing activities).
- \*3 **ROA:** (Operating income+Interest and dividend income+Equity in profit of unconsolidated subsidiaries and affiliated companies)/Total assets

The UBE Group is working to establish compliance by pursuing better corporate governance systems. It is also committed to the provision of good working environments and support for social contribution activities.

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## The UBE Group's Corporate Social Responsibility —Becoming a Group trusted by many people—

The UBE Group is already involved in a wide range of initiatives relating to corporate social responsibility (CSR) in such areas as environmental safety, human rights and social contribution. Public interest in CSR has risen over the past few years, and the UBE Group has made this aspect of its activities a major management priority. Recognizing the need for even greater efforts in this area, the UBE Group has adopted the following basic CSR policy and established a system to support its CSR activities.

### Basic Policy for Initiatives on CSR

The history of the UBE Group starts from the Okinoyama Coal Mine, established to develop the coal fields at Ube, Yamaguchi Prefecture. With its commitment to “co-existence and co-prosperity” with the local community, the Company used the limited coal industry as a starting point to create industries that would give rise to unlimited value, developing a succession of new businesses needed by the times to bring long-lasting prosperity. Unremitting self reform, a desire to progress through original technologies, and the ideal of sharing with various shareholders—these are the UBE Group's core identity that have permeated its long history.

UBE has made the following commitments linking its corporate social responsibilities to its economy (management), the environment, and its relationship with society.

- We will work to maximize our corporate value by continually improving our earnings, and by building a sound financial structure.
- We will help to protect the global environment by supplying safe, environment-friendly products, services and systems, by working to reduce levels of toxic substances and waste products, and by implementing measures to prevent global warming.
- We will work to establish compliance by strengthening corporate governance. At the same time, we will endeavor to provide good working environments and implement social contribution activities.

UBE will continue to work actively toward the sustainable growth of business and society through business activities guided by these three core commitments. We will also work to earn the trust of stakeholders, including stockholders, customers, suppliers, employees and regional communities, through accurate and appropriate disclosure of information.



# Corporate Governance

In 2001, UBE moved to separate governance and management functions by introducing an executive officer system and changing the administrative approach of the Board of Directors. UBE's aim in establishing the executive officer system was to speed up decision-making by allowing executive officers to focus solely on business operations. The role of the Board of Directors as the guardian of stockholder interests was also clearly defined in terms of its responsibility to maximize stockholder value from a medium-term and long-term perspective by supervising operations to ensure propriety and efficiency, by increasing transparency, and by minimizing risk. As part of this change, the number of directors was reduced to nine.

While UBE does not operate under the "company-with-committees" system, it does have an Evaluation and Compensation Committee and a Nomination Committee appointed as an internal committee of the Board of Directors. To ensure management transparency and objectivity, UBE appointed two outside directors in FY2005 to provide an external perspective on decisions. Two of the four corporate auditors were also appointed from outside of the Company.

UBE will continue to study new ways to improve corporate governance and strengthen and accelerate executive management systems. The optimization of strategic decision-making and of corporate governance systems will always remain a priority.

## Overview of Corporate Governance System

### Operation Methods for Group Management and Consolidated Management of Companies

#### ● Group Management

The Group CEO(Company president) is appointed by the Board of Directors and is responsible for the direction of the Group and the clarification of policy directives. The CEO also sets goals for each company and makes decisions on personnel, materials and management resources necessary for the realization of those goals. Decisions relating to matters beyond the authority of a single division/company are also the responsibility of the CEO.

#### ● Company Management and Business Operations

Companies work autonomously toward the attainment of their targets by effectively using the management resources allocated to them under policies established in agreement with group management.

#### ● Group Staff Department

The Group Staff assists the group and company managements with the strategy formulation and performance monitoring. They also provide integrated and highly efficient specialized support for group-level processes, including the procurement of human, material and financial management resources.

#### ● Group Support Department

The role of the Group Support Department is to support group operations by integrating activities that are common to the entire UBE Group wherever possible to ensure operational efficiency.

### Decision-making System

The UBE Group separates the functions of Governance and Management. It promotes transparency and efficiency in its corporate management by the following decision-making methods and procedures.

#### ● Board of Directors

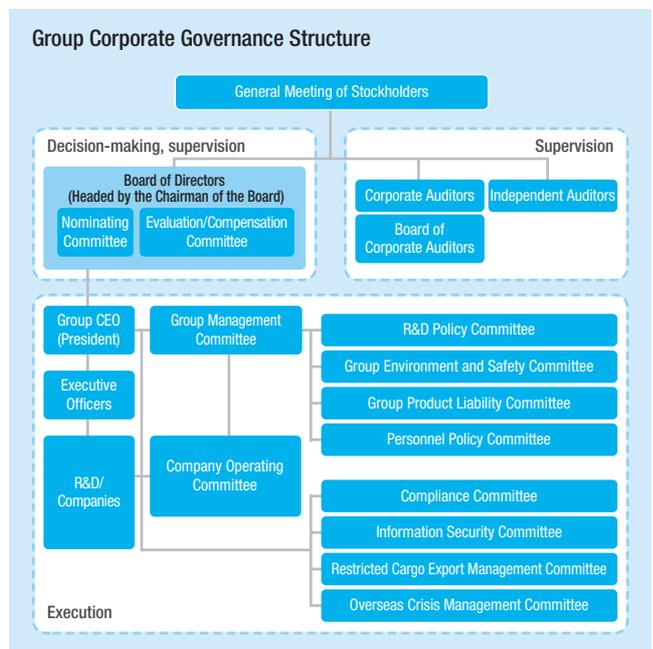
The Board of Directors issues decisions on topics affected by commercial laws and relating to corporate policy and major company directives, acting in the best interests of stockholders and with an eye to the medium and long-term health of the Group. The Board of Directors is comprised of all UBE directors. The Chairman of the Board presides over meetings, which are held on an as-needed basis, but not less than once every three months.

#### ● Group Strategic Management Committee

Based on the policy and regulations of the Group Management Committee, this committee discusses and decides issues relating to group-wide allocation of resources and other necessary items, including medium-term business plans, capital investment, investment and loan plans, budgets and projections, as well as other important items which impact the Group as a whole.

#### ● Company Steering Committee

This company-level committee discusses and/or makes decisions on UBE and UBE Group companies, Group strategy and other important issues based on Group policy and regulations.



# Compliance

Measures implemented by the UBE Group to strengthen its compliance systems include the following.

- In the area of corporate ethics, the “Our Personal Action Guidelines” have been reviewed and partially amended. The amended version has been distributed to directors and employees for use as practical compliance criteria. We are keeping all personnel informed through activities such as explaining the guidelines at each business office.
- A Compliance Officer (CO) has been appointed to ensure and promote compliance in the UBE Group. The UBE Group has also established a Compliance Committee, which includes an attorney. Compliance Promotion Officers have been appointed to each division and department. In-house companies and group companies have established similar organizations.

- A notification system has been established outside of the normal chain of command to allow direct reporting of compliance risks affecting the UBE Group. This source of information allows the Company to take prompt action to remedy such situations.

In the fiscal year ended March 2005, the Compliance Committee held briefings for UBE Group personnel concerning priority action necessitated by the introduction of new laws and changes to existing laws. During the period under review, the government amended the Subcontracting Law, the Law for the Prevention of Unfair Competition and the Temporary Employment Law and introduced the Law Concerning the Protection of Personal Information.

The UBE Group plans a major review of “Our Personal Action Guidelines” from a CSR perspective.

## Our Personal Action Guidelines

### 1. Corporate Mission and Creation of Value

We will strive to create new value, ensure continuing corporate development, and contribute to sound social development.

### 2. The Law and the Corporation

We will comply with Japanese and foreign laws and regulations and corporate regulations, behave as members of a sound society, and avoid involvement with antisocial elements.

### 3. Social Trust and Rating

We will develop and supply useful and safe technologies, products and services that allow us to earn the trust of society.

### 4. Impartiality and Sincerity

In our business activities in Japan and overseas, we will strive to maintain fair and free competition and perform our tasks in good faith.

### 5. Safety and the Environment

We will work independently and actively to ensure safety and protect the global environment.

### 6. Human Rights and the Workplace

We will respect human rights and develop workplaces that are healthy, bright and motivating.

### 7. Information Disclosure and Regional Communities

We will work to ensure accurate disclosure of corporate information and maintain effective and active communication with society in general.

### 8. International Society and the Corporation

As members of the international community, we will contribute to the development of the regions in which we are involved.

### 9. Establishing Corporate Ethics

We will work to establish corporate ethics based on these “Personal Action Guidelines.”

### Message from an Employee



General Manager, Legal Department  
Hitoshi Kimura

### System Improvement and Thorough Compliance

As head of the Compliance Promotion Secretariat, I have spent over two years working to ensure and promote compliance under the direction and supervision of the Compliance Officer. I am frequently asked by people in a variety of circumstances to consider and investigate whether particular situations constitute compliance issues.

As a corporate group committed to action in good faith in its business activities and operations, we obviously need to maintain compliance systems. In the current year I will continue to improve compliance systems for new in-house companies. I will also continue to inform employees about “Our Personal Action Guidelines” and other resources.

In a changing business environment, companies need to establish and implement appropriate internal governance systems that allow them to manage business risks and earn income while fulfilling their corporate social responsibilities. UBE implements a variety of measures to minimize and avoid potential internal or external risks. The day-to-day operation and management of these systems is delegated to various departments and committees. The Auditing Department, which operates independently of organizational units involved in business operations, monitors activities to ensure that risk management systems are being implemented properly.

Risk management initiatives by UBE include the establishment of the Group Environment and Safety Committee, the Group Product Safety (PL) Committee within the Group Strategic Management Committee. These committees formulate safety, environmental preservation and product safety management policies for the entire UBE Group and implement policies in these areas. The risk management system also includes the following organizational structures spanning the entire UBE Group.

## Information Security Committee

The officers and employees of the UBE Group recognize that information, like personnel, materials, money and time, is an important business resource with extremely significant implications for business activities. The Information Security Committee was established in 2002 to implement effective information security measures. It formulates and disseminates information security policies and is responsible for the development and implementation of rules and regulations relating to information security.

In 2004, the Information Security Committee responded to the amendment of the Law for the Prevention of Unfair Competition and the introduction of the Law Concerning the Protection of Personal Information by formulating internal policies and announcing a privacy policy. It also took steps to inform all corporate officers and employees about the laws and raise awareness about the need for information security. The Committee plans to implement annual programs to promote compliance at the individual employee level.

The Information Security Committee meets on a quarterly basis. As a result of its work, the UBE Group has stronger and more consistent measures to ensure information security.



The information security page on the UBE Group intranet

## Restricted Cargo Export Management Committee

The Restricted Cargo Export Management Committee was established in July 1997 under the provisions of the UBE Group's "Restricted Cargoes Export Management Compliance Program," which resulted from a total revision of the existing "Restricted Cargoes Export Management Regulations." It is responsible for keeping UBE Group personnel informed about the Group's basic policy on export management, which is that the UBE Group will not illegally export or supply goods or technologies in violation of export-related laws and regulations, including the laws governing foreign exchange transactions and international trade.

## Overseas Crisis Management

UBE Group has an increasing number of employees working overseas, including employees with families, and it recognizes that security and safety issues are growing. In an effort to ensure the safety of its expatriate staff and local employees alike, UBE set up an "Overseas Crisis Management (OCM) Board Meeting" in 1997.

This Committee forms the core of company efforts to ameliorate the risk. It has created a manual broken down into crisis levels and based on scenarios, created models for crisis operations for overseas locations, and made plans for a swift response to a variety of situations that might affect its overseas staff, staff families and local employees.

UBE also prepares employees and their families for overseas assignments with lectures and materials on local security, points of caution and proper response in a crisis situation, so that they are confident in their new work environment and prepared to respond to emergencies.



The OCM Board Meeting is held once every three months.

## E-manual

In 1996, UBE prepared its first domestic emergency manual ("E manual") to train in early response to and external action in case of emergencies, and in 2003 substantially revised the contents to include an emergency communications network and a crisis management HQ system.

# Health Care & Support

The UBE Group regards health management for employees as a important area of management policy. In line with this basic principle, the Health Care & Support Center actively supports initiatives by employees to maintain and improve their mental and physical health. The main health care and support measures implemented in the year ended March 31, 2005 are outlined below.

## Mental Health Training

The most important health-related measure is a training program centering on "all management staff about health care." The program was launched in fiscal 2003 and completed on schedule in fiscal 2004. UBE staff, including industrial physicians, nurses and industrial counselors, acted as instructors for the program. A self-care program for all employees has been run at the same time. UBE aims to complete this program, which focuses mainly on stress countermeasures, in fiscal 2005.

UBE has created systems that allow employees to receive mental health training tailored to their specific circumstances. For example, mental health has also been added to the curriculums of training programs for personnel at specific levels of seniority, including the new management staff training programs run by the Human Resources Department.



Employees participate in a mental health training.

## Developing a Comfortable Workplace

Starting in fiscal 2004, UBE has made development of comfortable workplaces a group-wide priority in the context of its health care and support policies. The aim is to promote mental health and prevent industrial accidents by improving communication. Specific measures include a "meet and greet" campaign to encourage employees to greet and talk to each other, and a designated smoking area program.



Employees take part in "meet and greet" campaign activities.

## Lifestyle Disease Countermeasures

For the past three years "Health-up" classes (health improvement courses) have been held in the Ube area for about 100 employees. These courses provide health advice for people affected by multiple risk factors, such as obesity, high blood pressure, hyperlipemia and hyperglycemia. As in the previous year, there were statistical improvements in about 60% of items. A lifestyle disease seminar addressing diabetes was held during Occupational Health Week at each corporate facility.

UBE also continues to expand and enhance its information activities in this area. Health information is now distributed via intranet pages and the in-house magazine "UBE," as well as through site safety and health committees. In an effort to improve statistical results from regular health checks in fiscal 2005, UBE introduced a campaign to encourage employees to improve their exercise and diet one month before the check-ups. It also began to recruit participants in "walking rallies" to foster a culture of health improvement through exercise. These initiatives reflect an increased emphasis on prevention as the focus of health management measures.

### Message from an Employee



Public Health Nurse/Health Care & Support Center, Health Care & Support Office

Mika Nakahigashi

### A System for Self-improvement and Keeping Informed

Our motto is "Your good health is an asset for UBE." We help people to maintain and improve their mental and physical health by working with them to develop disease prevention strategies and

strategies for coping successfully with illness so that they can still enjoy a full and rewarding work experience. The main types of support that we offer are health check-ups and follow-up advice, mental and physical-health counseling

by telephone, e-mail and other methods, and mental-health education. Our advice is not simply taken from textbooks, but is instead based on knowledge gained through experience, including workplace visits. Our role is to work with employees to discover ways to improve their lifestyles at work and at home.

My activities as an industrial public health nurse keep me busy, but I find the work extremely interesting and rewarding.

## Human Resource Development

The UBE Group regards human resources as the most important of its management resources. The development of “human resources who can contribute to the Company and society” is recognized as an important management priority. The basic philosophy behind the UBE approach to human resource development is that every employee should be a professional, which is defined as a person who has superior specialized skills in a particular field of work and is able to use those skills to produce results.

Under this policy, employees create individual career designs to support their professional development in their fields of activity. UBE helps them to build the necessary abilities through a combination of methods, including on-the-job training, group training, outside assignments and distance learning.

UBE has also introduced goal management and results-based elements into its personnel systems. The aim is to help individual employees to achieve their full potential through mechanisms that reward effort and results.

## Human Rights Initiatives

There are many human rights issues in Japanese society, including discrimination against women, children, disabled people and people from marginalized social groups or of different nationalities or ethnic groups. As corporate citizens, businesses need to show

respect for human rights in their activities.

UBE is helping to build a society in which people are respected as individuals. It has established a Human Rights Issue Education Committee to support educational activities designed to create an environment in which people from various backgrounds can cooperate and accept each other’s differences. Those activities include director training, regional seminars, and the enrollment of staff in external training programs.

Respect for human rights is a fundamental principle for the UBE Group. UBE will continue its efforts to raise awareness of human rights among its employees.

The UBE Group’s “Personal Action Guidelines” include the following declaration on “Human Rights and the Workplace.”

### Chapter 6: Human Rights and the Workplace

We will create bright, healthy workplaces in which there is respect for human rights.

1. We will respect human dignity and individuality and strive to achieve mutual understanding. We will not discriminate unfairly.
2. We will create bright, healthy and motivating working environments in which individuals can use their abilities to the full.
3. We will work to build and maintain good industrial relations based on mutual trust.

### On-the-job Training (OJT)

Training through work in the workplace, under the guidance of the workplace

### Off-the-job Training

Training away from work and the workplace, under the guidance of the company

Career Education [Group Education, External Courses]	Training by Theme [Group Education, e-Learning]	Selective Training [Group Education, External Programs]	Support for Self-improvement
<ul style="list-style-type: none"> <li>•Guidance and education for new employees</li> <li>•Follow-up training for new employees</li> <li>•Third-year training</li> <li>•Career design training</li> <li>•New management training</li> <li>•Middle-rank management training</li> <li>•New executive training</li> </ul>	<ul style="list-style-type: none"> <li>•Common specialized technology education</li> <li>•Patent training</li> <li>•Legal training</li> <li>•Compliance training</li> <li>•Information security training</li> <li>•Human rights education</li> <li>•Environment and safety education</li> <li>•Assessor training, etc.</li> </ul>	<ul style="list-style-type: none"> <li>•International business personnel development                             <ul style="list-style-type: none"> <li>Overseas MBA programs</li> <li>Practical training with overseas subsidiaries</li> <li>Law school programs</li> </ul> </li> <li>•Leadership training                             <ul style="list-style-type: none"> <li>Business leadership training</li> <li>Management leadership training</li> </ul> </li> <li>•External programs for research and technology personnel                             <ul style="list-style-type: none"> <li>Programs in universities and research institutes in Japan and overseas</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•Skills and qualifications                             <ul style="list-style-type: none"> <li>Distance education courses</li> <li>Achievement of official qualifications</li> </ul> </li> <li>•Languages                             <ul style="list-style-type: none"> <li>TOEIC exams</li> <li>Conversational foreign language courses</li> </ul> </li> </ul>

### Message from an Employee



Human Resource Development Group/Human Resources Department  
Yasuko Sakamoto

### Developing Human Resources Capable of Contributing to Society

UBE’s founding ideals were to create unlimited industries from finite mineral resources, and to exist in harmony and shared prosperity with society. With today’s emphasis on corporate social responsibility, we aim to return to these founding ideals through our human

resource development activities. Our aim is to develop human resources who can contribute to society through their work by adding value to our employees as professionals in their own right. Another priority is to ensure that UBE continues to enjoy the confidence of the public and the support of its markets by fostering a positive, open and energetic corporate culture.

## Measures for Employment of the Physically Challenged

UBE is actively creating employment opportunities for physically challenged individuals, and in 1991 it established its first special subsidiary for this purpose, Libertas Ube, Ltd., in Yamaguchi Prefecture. Initially Libertas Ube employed the physical challenged, and in fiscal 2003 it also began to provide jobs for intellectually disabled workers. As of June 2005, 23 disabled people were working for Libertas Ube.

Changes in work methods are an important aspect of efforts to facilitate employment for the disabled. An excellent example of the development of a work situation suitable for intellectually disabled people is the switch from individual to team work in Libertas Ube's cleaning business.

Based on its past experience in the provision of job opportunities for disabled people, UBE plans further efforts to facilitate employment and will actively support increased community participation by disabled people in various ways, including the provision of employee accommodation cleaning work in cooperation with facilities for the disabled, and the contracting of work to work support centers.



Libertas Ube employees at work



## Environment and Safety Education

Human resource development activities include the following environment and safety education programs run by UBE's head office for employees. UBE encourages all workers to acquire knowledge, practical skills and qualifications, including public certifications required for the operation of equipment in factories.

- **New employees:** Responsible Care, Basics of Safety, Health Care & Support, etc.
- **Environment and Safety Management level staff in plant:** correspondence course on Safety and Health
- **Maintenance persons for High Pressure Gas:** held technical exchange meeting to give mutual presentations
- **All UBE Group employees:** RC education and detailed explanation of reports for RC report meetings
- **Quality Assurance, Logistics and Sales Personnel:** Education on chemical container labeling
- **Quality Assurance, Procurement and Sales Personnel:** Education on European chemical regulations and the response
- **Environment and Safety Staff at Plants:** Internal OSHMS auditor training
- **UBE Group persons in charge of Environment and Safety:** training in explanation of revisions to laws; training in UBE Group-wide policy discussion
- **Directors:** Environment and safety topics affecting the Company significantly

In addition, mental health training has been added to the curriculums for career education, such as training for new managers. The aim of this approach is to ensure that employees have access to training that reflects their particular circumstances.

UBE Group companies and plants also implement a variety of educational courses and training programs relating to the environment and safety. These initiatives are included in each plant's annual environment and safety management plans.



Training for managers and supervisors

### Message from an Employee



Production Team Leader /Special Subsidiary, Libertas Ube, Ltd.

**Hiromi Ochi**

### Work, Relationship with Society

Like other companies, Libertas Ube is linked to society through its printing and cleaning businesses. The difference is that over one-half of its employees, myself included, are physically challenged.

It is extremely difficult to compete with other companies under these circumstances. However, we are moving from an era in which companies sold goods and services into one in which we sell satisfaction and trust through products

and services. We are working to attract long-term customers by refusing to be handicapped by our disabilities, and by supplying quality products. We place considerable value on the links that we build with society through these efforts.

My ability to work despite my disability gives me confidence and pride. It also allows me to interact with society, and I feel that I am making a contribution to society, however small. I look forward to the day when there are more companies like this one.

## Regional Cooperation and Communication

UBE Group undertakes various programs and participates in local activities to promote better understanding of its operations in local communities. It also publishes and distributes an annual Responsible Care Report (CSR Report from this fiscal year), creating further opportunities for dialogue with local citizens.

### ● Facility Tours

Many stakeholders are welcomed to the UBE Group's factories and research facilities, including students from local schools and members of various organizations. Factories also run open days for families to give children opportunities to learn about their parents' company.



Residents tour a recycling facility.

### ● Responsible Care Community Dialogue Meetings

The Japan Responsible Care Council (JRCC) organizes responsible care community dialogue meetings, especially in areas where industrial complexes are located. As a JRCC member, UBE participated in its fifth community dialogue meeting in the Chiba district and gave presentations on environment preservation activities at the Chiba Petrochemical Factory.



A responsible care community dialogue meeting in the Chiba district

### ● Responsible Care Community Dialogue Meeting in the Ube/Onoda District

Five JRCC member companies in the Ube/Onoda district held the second community dialogue meeting. The meeting was attended by about 20 company representatives, and about 20 local residents and representatives of environmental NGOs, consumer groups and other organizations. The duration of this year's meeting was extended, and a tour of the Ube Chemical Factory was followed by free discussion, and a lively exchange of views on



such topics as corporate RC reports, odors, water quality problems linked to factory wastewater, smokestack emissions, green areas, and carbon dioxide.

### ● Chemistry Experimentation Lab

As part of its annual "Summer Holiday Junior Science Class" program, UBE invites elementary and junior high school students to the Ube Research Laboratory to experience the fascinating world of chemistry. In Tokyo, UBE participated in the "Children's Summer Holiday Chemistry Experiment Show," which was part of the "Chemistry Makes Our Dreams Come True" program. Both programs were designed to foster an interest in chemistry among children.



The Summer Holiday Junior Science Class



The Summer Holiday Chemistry Experiment Show

### ● Other Regional Cooperation Activities

UBE Group sites are continually working to foster harmony with local communities through participation in and sponsorship of local industry festivals and fireworks displays, flower planting within business sites, and clean-up programs in areas around business sites. UBE also supports blood donation campaigns.



# Participation in Cultural and Arts Activities

Through its ongoing support for a wide range of cultural and arts activities, the UBE Group is helping to develop the talent of the future.

## ● The UBE Foundation

The Ube Industries Scientific Research Foundation (Chairperson: Kazumasa Tsunemi) was originally established in 1959 as the Watanabe Memorial Science Foundation, using a bequest from the late Takaji Watanabe, the founding Chairman of UBE. Its activities include the provision of scientific research grants to young scientists, and financial support for scientific research facilities. To commemorate UBE's centenary in 1997, it was renamed the Ube Foundation, and its endowment was increased. The four recipients of Ube Foundation grants in fiscal 2004 are listed below.



### UBE Foundation Grant Recipients

<b>Yukio Tanizawa</b>	Professor, Graduate School of Medicine, Yamaguchi University Research Theme: Determination of Compensatory Rupture Mechanism for Insulin Resistance of Pancreatic B-Cell
<b>Masahiro Murakami</b>	Professor, Graduate School of Engineering, Kyoto University Research Theme: Development of New Peptide Supported Carbene Complex Refrigerant
<b>Naoyuki Harada</b>	Assistant Professor, Faculty of Engineering, Yamaguchi University Research Theme: Basic Research on Superconducting Rectifying Device Realized Using Micromachining Technology
<b>Hidemasa Oh</b>	Associate Professor, Department of Experimental Therapeutics, Translational Research Center, Kyoto University Hospital Research Theme: Establishment of Stem Cell Lines in the Human Heart for Myocardial Cell Regenerative Medicine

### Message from an Employee



Ube Corporate Services Department  
Naomasa Fujibe

### Participation in Various Regional Social Activities

UBE is the biggest company in Ube City. Throughout its history, it has grown and prospered in partnership with the local community.

As described here, it is actively involved in a variety of regional cooperation and cultural and artistic activities.

UBE remains committed to harmonious coexistence and shared prosperity with this region. Our aim is to contribute to the advancement of regional communities and live up to the expectations of local residents through cooperation in and support for both small-scale and large-scale initiatives.

## ● Watanabe Memorial Culture Association

Established in 1936, the Watanabe Memorial Culture Association (Chairperson: Kazumasa Tsunemi) uses assets from the estate of UBE founder Yusaku Watanabe to support cultural activities, including events at the Watanabe Memorial Hall.

The Association also purchases scholarly books, such as large-format art books, for donation to city libraries as the Watanabe Memorial Collection.



A corporate history published to mark the Association's 50th anniversary

## ● Support for Exhibition of Contemporary Japanese Sculpture

The Contemporary Japanese Sculpture Exhibition has been held biennially since 1965. UBE support for the Exhibition, which is held in Tokiwa Park, Ube City, has included the presentation of the Ube Industries Prize and financial support for the purchase of winning sculptures. Through this activity, UBE has helped to foster artists while contributing to the beautification of the landscape. The winner of the Ube Industries Prize in the 20th Exhibition held in 2003 was Tokihiro Sato, whose entry was

entitled "Triangle-Square-Pentagon, The Camera in Ube."



"Triangle-Square-Pentagon, The Camera in Ube"—selected for the Ube Industries Prize

## ● Support for Exhibition of Contemporary Japanese Painting (Ube Art Biennale)

The venue for this exhibition, which has been held every two years since 1976, is the Ube Culture Hall. UBE donates the Ube Industries Prize and the Watanabe Memorial Culture Association Prize.

In 2004 the Ube Industries Prize was awarded to Takeshi Miwa for his work "Marie 02." Seiji Hara's "Monument" was selected for the Watanabe Memorial Culture Association Prize.



Ube Industries prize winner "Marie 02"

# Environment-friendly Products

UBE Group is contributing to the creation of a resource recycling society by developing products and technology with low environmental impact in every division of its operations. Here we introduce some of the leading products from these divisions.

■ Name    ◆ Use    ★ Environmental Benefit

## Chemicals



The popular Heliobfresh fragrance range

### ■ Heliobfresh

- ◆ Refreshing marine scent (fragrance)
- ★ Earlier such products were made from forest products, including wood from tropical rainforests. UBE is helping to protect forests by synthesizing this fragrance from catechol, a fine chemical product that it manufactures itself.



1,6-Hexanediol

### ■ 1,6-Hexanediol

- ◆ Polyurethane material/solvent-free UV hardening resin/powder paints/hot-melt adhesives
- ★ This product is made by recycling liquid waste produced during the manufacture of cyclohexane as an intermediate material for nylon.



Synthetic leather products made from PCD

### ■ Polycarbonatediol (PCD)

- ◆ Raw material for the highest-quality polyurethane resin
- ★ This product helps to protect nature through its use in manufacture of synthetic leather similar to natural leather.



A DMC manufacturing plant

### ■ Dimethylcarbonate (DMC)

- ◆ Basic material for polycarbonate resins
- Alternative to dimethyl sulfate and methylene chloride
- A solvent for gravure inks
- ★ With minimal toxicity, this product causes no adverse environmental or health effects



Separation membrane modules

### ■ Separation membranes (hollow polyimide fibers)

- ◆ Used in gas separation systems
- ★ These membranes help to clean the atmosphere through their use in the recovery of CO<sub>2</sub> and chemical substances from the air.



Aqua Solution

### ■ Photo-catalytic fiber modules "Aqua Solution"

- ◆ Used in water purification systems
- ★ UBE is building a major market for this product, applications for which include the elimination of E. Coli and Legionella bacteria and dioxins.



A tanker loaded with hydrogen peroxide

### ■ Hydrogen Peroxide (Kemira-UBE, Ltd.)

- ◆ Used to bleach paper, pulp and fiber
- Eliminating bacteria
- Used in etching of electronic circuit boards
- ★ This product is playing an essential role as an alternative to chlorine for wastewater purification and other uses.



Slow-release fertilizer is popular with farmers and gardeners.

### ■ Slow-release fertilizer (Ube Agri-Materials, Ltd.)

- ◆ A long-acting fertilizer
- ★ This soil-friendly fertilizer has a neutral pH and breaks down without leaving toxic residues.



Safe-to-use wrapping products

### ■ Heat-resistant "Polywrap" (Ube Film, Ltd.)

- ◆ Microwave-safe food wrapping film
- ★ This product contains no chlorine, and no toxic gases are emitted when it is incinerated.

## Cement & Construction Materials



A "Friendly Wall" panel

### ■ "Friendly Wall" (Ube Board Co., Ltd.)

- ◆ An interior material made by processing diatomaceous earth, a natural material, into dry panels
- ★ This people-friendly and environment-friendly material produces no emissions of volatile organic compounds (VOCs), which cause sick house syndrome, and also prevents condensation and mold.



An incineration facility using Calbreed SII

### ■ Calbreed SII (Ube Material Industries, Ltd.)

- ◆ Highly-reactive slaked lime for use in smokestack gas treatment (used in waste incinerators operated by local governments)
- ★ This product enhances absorption of toxic acid gases emitted during incineration of industrial waste.



Highly-reactive Calbreed SII



Solbalit in fine powder form

### ■ Solbalit (Ube Material Industries, Ltd.)

- ◆ Slaked lime for use in smokestack gas treatment (used in waste incinerators operated by local governments)
- ★ Solbalit absorbs and removes dioxins and other substances contained in smokestack gas from waste incinerators.



Application of U-Stabilizer

### ■ U-Stabilizer (Ube Mitsubishi Cement Corporation)

- ◆ Green Lime (Ube Material Industries, Ltd.)
- ◆ Used for ground improvement, including stabilization of weak soil and sewage sludge
- U-Stabilizer (cement-based) and Green Line (limestone-based)
- ★ Used to improve road beds and embankments and stabilize slopes, sludge and construction residues



Improving water quality in a lake

#### ■ Clear Water, Calsan Marine (Ube Material Industries, Ltd.)

- ◆ Water quality improves based on magnesium hydroxide and quick lime
- ★ These products improve the quality of water and sediment at the bottom of the sea and lakes. They are used in closed-water areas and marine farms.



Fuel Conditioner

#### ■ Fuel Conditioner (Fukushima Ltd.)

- ◆ Removes 70-80% of sludge contained in heavy fuel oil for marine engines
- ★ Sludge produces soot and causes atmospheric pollution. It is also responsible for engine wear. This system improves the combustibility of fuel by using rotation and ultrasonic waves to pulverize the sludge into fine particles as the fuel is fed into the engine. Sludge removed using conventional filtration systems was itself a cause of pollution, but with this system that problem can be avoided. Fuel conditioners have been installed on numerous vessels.

### Machinery & Metal Products



Aluminum wheels for luxury vehicles

#### ■ Aluminum Wheels

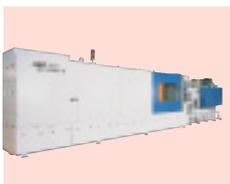
- ◆ Strong yet attractive car wheels with fine metal structure
- ★ Made using a unique casting method, these wheels are as strong as forged products. Their light weight contributes to improved fuel efficiency and the reduction of exhaust gas emissions.



An Air Floating Conveyor system in operation

#### ■ Air Floating Conveyor (Ube Machinery Co., Ltd.)

- ◆ Transportation system for dust-prone products, such as coal and crushed rock
- ★ This system is totally sealed to prevent dust and odors from escaping. Its revolutionary air cushion belt eliminates noise and vibration, since there are no rollers in the central part of the system. This feature also helps to save energy, since a smaller motor can be used. And because the system moves material rapidly, facilities can be smaller.



One of the world's largest class all-electric injection molding machines (MD1800S-IV)

#### ■ All-Electric Large-Scale Injection Molding Machine (Ube Machinery Co., Ltd.)

- ◆ Plastic molding machine (ideal for integrated molding of plastic and surface materials and simultaneous in-mold coating)
- ★ Because this machine is all-electric, there is no waste resulting from the use of hydraulic fluids or coolants. There are also significant energy conservation benefits, since power consumption is about one-third and cycle time about two-thirds compared with the requirements for hydraulic systems. This product was selected for an award from the Director-General of the Agency for Natural Resources and Energy.



A biomass gasification system

#### ■ Woody Biomass Gasification and Power Generation Facility (Ube Techno Eng. Co., Ltd.)

- ◆ Power generation and heat recovery systems with gas engine powered by gasified biomass
- ★ By utilizing carbon-neutral woody biomass, it is possible to reduce consumption of fossil fuels, which is a major cause of global warming. This technology also helps to conserve and improve the health of forests by making effective use of sawmill chips, wood chips and other unused forest resources.

### Energy & Environment



The widely recognized EUP plant

#### ■ "EUP" Two-Stage Pressurized Gasification Process

- ◆ A process to synthesize waste plastic and shredder dust into gases that can be used as chemical raw materials
- ★ This is a highly effective disposal method for waste plastic. Separate removal of vinyl chloride is not required. In 2005 this process won a Global 100 Eco-Tech Award from the Japan Association for the 2005 World Exposition, Aichi, Japan.



Z-Sand

#### ■ Z-Sand

- ◆ A light, water-permeable artificial sand that can be used as a substitute for natural sand and soil
- ★ This new civil engineering material provides a way to turn coal ash into a useful resource that will not contaminate the environment.



This plant turns incinerator ash into a raw material for cement.

#### ■ Incinerator Ash Recycling Technology (Yamaguchi EcoTech)

- ◆ Technology to turn incinerator ash into a raw material for cement
- ★ This system safely and reliably processes incinerator ash into a cement raw material. Before it is fed into high-temperature cement kilns, the ash is first treated to remove dioxin and washed to remove chlorine.



Wood chips and compost are processed from green waste.

#### ■ Organic Recycling (West Japan Green Recycling)

- ◆ A process for making pulping chips and compost from organic waste, such as logging waste and garden trimmings
- ★ Organic materials are effectively recycled into useful, environment-friendly resources.

The UBE Group is working to preserve the global environment through supplying safe and environment-friendly products and services, through reducing levels of toxic substances and waste, and contributing to global warming prevention measures.

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## Responsible Care\*\*1

Since 1990, when the Responsible Care (RC) activity started in Japan, UBE has been carrying out these activities not just in the Chemical segment, but also in Cement & Construction Materials, Machinery & Metal Products segments and Energy & Environment Division, as well. RC activities are also developing throughout the Group as a whole. As a member of the Japan Responsible Care Council (established in 1995), UBE promoted RC activities under the following six codes to protect employees, local residents and regional environment, safety and health.

### UBE Is Taking Action in Six Themes for Environment, Safety and Health

#### 1. Environmental Preservation

Environment-friendly business activities that promote energy conservation, reduction of environment-polluting emissions and other pro-environment operations

#### 2. Process Safety and Disaster Prevention

Carrying out safe operations and preventing accidents

#### 3. Occupational Safety and Health

Protecting the safety and health of workers

#### 4. Product Safety

Manufacturing safe products and providing proper information on correct usage

#### 5. Logistics Safety

Implementing safe transport

#### 6. Publication of performance reports and dialogue with society

Publishing performance reports and promoting further mutual understanding through public dialogue

## Environment and Safety Principles

On July 1, 2005, UBE made the following changes to its Environment and safety Principles.

- The name of the person making the declaration has been changed following the appointment of a new president
- An item pertaining to process safety has been added to provide a clearer statement that process safety is the responsibility of top management under revision of the High-Pressure Gas Safety Law.
- An item concerning the publication of performance reports and dialogue with society has been added.

As members of society, corporations must be fully conscious of their own responsibilities regarding their contributions to society, environmental preservation and the maintenance of health and safety in performing their corporate activities.

As the core company in managing the consolidated UBE Group, UBE shall pursue the following vision in order to perform its leadership role, and shall work to improve the quality of the environment and safety among all of its Group companies through publication of performance reports and dialogue with society.

- **Operational Safety:** Ensuring operational safety shall be the priority in all areas and activities under UBE's commitment to respect human life.
- **Process safety:** UBE shall regard maintenance of process safety as part of its basic mission as a manufacturer.
- **Environmental Preservation:** As a responsible corporate citizen, UBE shall act positively to protect and improve both community and regional conditions and to work for the preservation of the global environment.
- **Product Safety:** The UBE Group shall pursue its corporate responsibility in providing its customers and the public with safe and reliable products.
- **Health Management:** UBE recognizes that maintaining and promoting the health of its employees is the basis of corporate and social vitality.

President and Group CEO  
Ube Industries, Ltd.

*Hiroaki Tamura*  
Hiroaki Tamura

Instituted April 1992. Revised April 1996, July 1999, April 2003, July 2005

### What is RC Activity?

Responsible Care (RC) is a set of voluntary initiatives based on the principles of autonomous decision-making and self-responsibility. Under RC, corporations that manufacture and/or handle chemical substances are working voluntarily to preserve health, safety and the environment in every process, from the development of chemicals through their manufacture, distribution, use and final consumption and disposal. This includes maintaining ongoing dialogues and discussions with the public by openly disclosing the results of these efforts.



**Responsible Care**

### GLOSSARY

\*1 **Responsible care (RC):** This concept originated in Canada in 1985. It has been adopted by members of the International Council of Chemical Associations (ICCA), which was established in 1990 and currently (as of April 2005) has a membership of 52 countries and regions. In Japan, the Japan Responsible Care Council was created within the Japan Chemical Industry Association in 1995. Currently there are 110 member companies.

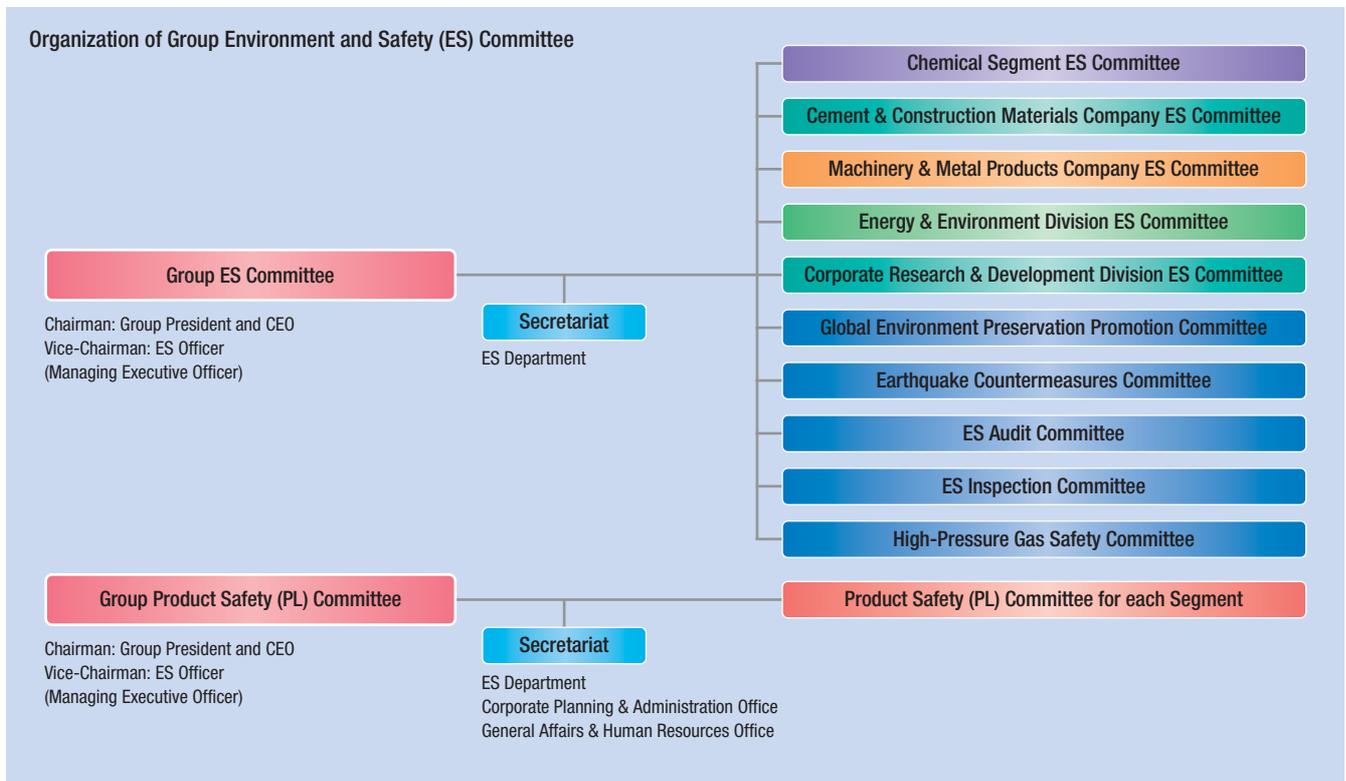
# Environment and Safety Management System

The UBE Group established the Group Environment and Safety Committee, consisting of Group Management Committee members and chaired by the president (also the Group CEO), as the highest decision-making entity in the area of safety management, environmental preservation and health management as set out in our Environmental and Safety Principles. This Committee decides Group policy as well as implementation plans relating to the environment, safety and health.

The Group Safety (Product Liability) Committee has been determining and reviewing the policy relating to product safety. Under the Group Environment and Safety Committee, individual Environment and Safety Committees were set up for each of five

business areas as shown below, and each committee deals with environment and safety measures that relate to the business operations of each area in accordance with the policies and plans determined by the Group Environment and Safety Committee.

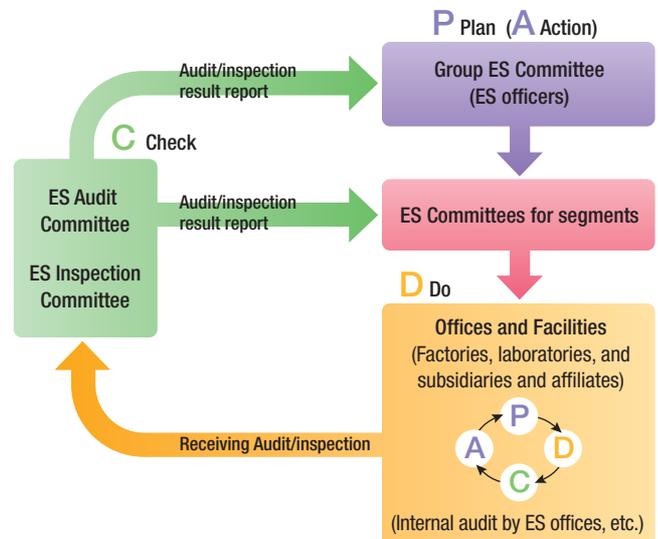
In addition, there are also individual committees, responsible for global environmental preservation, earthquake countermeasures, auditing and inspections, were set up to examine, report on, and review specific activity plans. The Earthquake Countermeasures Committee is currently reviewing its objectives. In July 2005, the High-Pressure Gas Safety Committee was established to strengthen high-pressure gas safety management following changes to the High-Pressure Gas Safety Law.



## Responsible Care Management System

The UBE Group is continually improving performance relating to the environment, safety and health under a management approach based on the Plan-Do-Check-Action (PDCA) cycle. Segment Environment and Safety Committees draw up specific plans based on policies determined by the Group Environment and Safety Committee. These plans form the basis for measures implemented by individual office or facility.

Each office or facility undergoes annual environment and safety audits, while UBE Group companies are audited every two years. There are also environment and safety inspections conducted by senior management. Audits and inspections may result in the issuance of directives requiring remedial action. Findings are reported to the Group Environment and Safety Committee and segment Environment and Safety Committees.



# Environment and Safety Efforts

## History

Year	Organization & Environmental Activities (UBE)	Domestic and World Trends
1949	○ Ube System*1 started	
1951	○ Dust Countermeasures Section established in Ube City	
1971	● Environment Management Section established in each factory	● Environment Agency established
1973	● Environment Management Department established in head office (currently "ES Department") ● Energy Savings Committee established	● Special Environment Preservation Law for Seto Inland Sea enacted
1992	● UBE ES Principles instituted	○ UN Conference on the Environment and Development (Earth Summit) held
1993		● Basic Environment Law enacted
1994	● Environment-related business Office started ● ES audits started	○ UN Framework Convention on Climate Change took effect
1995	● Joined Japan Responsible Care Council (JRCC), UBE's Voluntary ES Plan formulated	● JRCC established ● Container and Packaging Recycling Law enacted
1996	● UBE's ES Principles revised ● Environment and Engineering Division formed	
1997	○ Ube City awarded UNEP Global 500 Prize ● 1st RC report issued ● Participated in 1st RC regional meetings in Chiba, Yamaguchi, and Sakai-Senboku (every two years thereafter)	○ 3rd Convention on Climate Change (COP3) held (Kyoto Protocol adopted)
1998	● Resource Energy Measures Study Committee established ● Personal Action Guidelines instituted	● Law Concerning the Promotion of the Measures to Cope with Global Warming enacted
1999	● Isa Cement Factory received ISO 14001 certification. Subsequently, all plants awarded ISO 14001 certifications ● Participated in 2nd RC regional meeting in Chiba	● Chemical Substance Management Promotion Law (PRTR Law) enacted ● Law Concerning Special Measures Against Dioxins enacted ● Guidelines on Environmental Accounting announced
2000	● Environmental accounting introduced ● 2010 Environment Preservation Project initiated ● Participated in 2nd RC regional meetings in Sakai-Senboku and Yamaguchi	● Basic Law to Promote the Formation of a Recycling-Conscious Society enacted
2001	● Global Warming Prevention Promotion Committee formed ● Participated in 3rd RC community dialogue in Chiba	● Environment Agency restructured into the Ministry of the Environment ● Law for the Recycling of Specified Kinds of Home Appliances enacted
2002	● Participated in 2nd RC community dialogue in Sakai-Senboku and Yamaguchi	● Kyoto Protocol ratified ● Soil Pollution Prevention Law enacted
2003	● Participated in 4th RC community dialogue in Chiba ● Personal Action Guidelines revised	○ Climate Change Conference ● Summary of FY2002 PRTR statistics published
2004	● Participated in the 1st RC community dialogue in Ube/Onoda area ● Establishment of environment and safety inspection system for overseas sites	● Law Concerning the Evaluation of Chemical Substances and Regulation of their Manufacture, etc. (Chemical Substances Control Law) enacted ○ Kyoto Protocol ratified by Russia
2005	● Participation in 2nd RC community dialog meeting in Ube-Onoda district ● "RC Report" restructured as "CSR Report"	○ Kyoto Protocol in force ● Partial Amendment to the Law Concerning the Promotion of the Measures to Cope with Global Warming enacted ● Regulations concerning prevention of asbestos-related disease enforced

## GLOSSARY

\*1 **Ube System:** This is the common name for a system that was independently established by Ube City as a measure to prevent environmental pollution, whereby the public, academic specialists, administrative agencies and companies have cooperated in carrying out voluntary activities on the basis of information disclosure. While the Ube System already has a history of more than 50 years, new viewpoints are still being incorporated in addressing environmental and safety issues.

### ISO Certification and Other Approvals

The UBE Group energetically acquires ISO 14001, ISO 9000-series and OHSAS-18001 certifications, which represent international standards of environmental management, quality management and occupational safety and health management. In the high-pressure gas, boiler and other fields, UBE has obtained certification for its inspectors and promotes voluntary safety standards.

#### ISO 14001 (Environment Management Systems) Certification

Certification Year	Ube Industries	Group Companies
1998		●Fukushima Ltd.
1999	<ul style="list-style-type: none"> <li>●Cement Production Department</li> <li>Isa Cement Factory</li> <li>Ube Cement Factory</li> <li>Kanda Cement Factory</li> <li>●Chiba Petrochemical Factory</li> <li>●Machinery and Engineering Works (Currently known as Ube Machinery Co., Ltd.)</li> <li>●Corporate Research and Development Division</li> <li>Polymer Research Laboratories (Chiba, Ube)</li> <li>Ube Research Laboratory</li> </ul>	<ul style="list-style-type: none"> <li>●Ube-Mitsubishi Cement Research Institute Corporation, Ube Center</li> <li>●UBE Scientific Analysis Center</li> </ul>
2000	<ul style="list-style-type: none"> <li>●Sakai Factory</li> <li>●Ube Chemical Factory</li> <li>●Coal Business Unit</li> <li>●Power Business Unit</li> <li>●Ube Aluminum Wheel Factory (formerly U-Mold Co., Ltd.)</li> </ul>	<ul style="list-style-type: none"> <li>●Ems-Ube, Ltd.</li> <li>●UMG ABS, Ltd. (formerly Ube Cycon, Ltd.)</li> <li>●Thai Synthetic Rubbers, Co., Ltd. (Thailand)</li> <li>●Ryukyu Cement Co., Ltd. (Yabe Plant)</li> </ul>
2001	<ul style="list-style-type: none"> <li>●Environment Business Division</li> <li>●Nishioki Factory</li> </ul>	<ul style="list-style-type: none"> <li>●Ube Ammonia Industry, Ltd.</li> <li>●T&amp;U Electronics Co., Ltd.</li> <li>●Jade Fine Chemicals (Wuxi) Co., Ltd. (China)</li> <li>●Kemira-Ube Co., Ltd.</li> <li>●Ube-Nitto Kasei Co., Ltd.</li> </ul>
2002		<ul style="list-style-type: none"> <li>●Thai Caprolactam Public Co., Ltd. (Thailand)</li> <li>●Meiwa Kasei Industries, Ltd.</li> </ul>
2003		●Ube Automotive North America, Sarnia Plant, Inc.
2004		<ul style="list-style-type: none"> <li>●Hagimori Industries, Ltd.</li> <li>●Ube Materials Industries, Ltd.</li> <li>●Ube Film, Ltd.</li> <li>●Ube Nylon (Thailand), Ltd. (Thailand)</li> </ul>
2005		●Ube Steel Co., Ltd.

Where a group company has multiple plants, the year in which certification was first obtained is shown.

#### Occupational Safety and Health Management Certification

Certification Year	Ube Industries, Ltd.	Group Companies
2000		●Fukushima Ltd.
2002		<ul style="list-style-type: none"> <li>●Thai Synthetic Rubbers, Co., Ltd. (Thailand)</li> <li>●Thai Caprolactam Public Co., Ltd. (Thailand)</li> </ul>
2003		●UMG ABS, Ltd.
2004		●Ube Ammonia Industry, Ltd.
2005	<ul style="list-style-type: none"> <li>●Ube Aluminum Wheel Factory</li> <li>●Sakai Factory</li> <li>●Ube Cement Factory</li> <li>●Nishioki Factory</li> </ul>	●Hagimori Industries, Ltd.

#### ISO 9000-series (Quality Management System) Certification

Certification Year	Ube Industries	Group Companies
1992		●UMG ABS, Ltd. (formerly Ube Cycon, Ltd.)
1994	●Ube Chemical Factory	
1995	<ul style="list-style-type: none"> <li>●Chiba Petrochemical Factory</li> <li>●Isa Cement Factory</li> </ul>	
1996	<ul style="list-style-type: none"> <li>●Machinery and Engineering Works (now Ube Machinery Co., Ltd.)</li> <li>●Kanda Cement Factory</li> <li>●Sakai Factory</li> </ul>	
1997	●Ube Cement Factory	<ul style="list-style-type: none"> <li>●Ube Machinery Inc. (U.S.A)</li> <li>●Fukushima Ltd.</li> </ul>
1998	●Ube Aluminum Wheel Factory (formerly U-Mold Co., Ltd.)	
1999		<ul style="list-style-type: none"> <li>●Ube Information Systems Inc.</li> <li>●Ube-Nitto Kasei Co., Ltd.</li> <li>●Meiwa Kasei Industries, Ltd.</li> <li>●Ube Chemical Europe, S.A. (Spain)</li> <li>●Ryukyu Cement Co., Ltd. (Yabe Plant)</li> <li>●Ube Steel Co., Ltd.</li> </ul>
2000	●Nishioki Factory	<ul style="list-style-type: none"> <li>●UEL (formerly Ube Electronics, Ltd.)</li> <li>●Yamaishi Metal Co., Ltd.</li> </ul>
2001		<ul style="list-style-type: none"> <li>●Ube Industries Consulting, Ltd.</li> <li>●Kanto Ube Concrete Co., Ltd.</li> <li>●Ube Materials Industries, Ltd.</li> <li>●Ube Scientific Analysis Center</li> <li>●Kemira-Ube Co., Ltd.</li> <li>●Jade Fine Chemicals (Wuxi) Co., Ltd. (China)</li> </ul>
2002		<ul style="list-style-type: none"> <li>●Hagimori Industries, Ltd.</li> <li>●Ube Ammonia Industry, Ltd.</li> <li>●Ube Shipping and Logistics, Ltd.</li> <li>●Ube Automotive North America, Sarnia Plant, Inc.</li> <li>●Ube Techno Eng. Co., Ltd.</li> <li>●Thai Caprolactam Public Co., Ltd. (Thailand)</li> <li>●Thai Synthetic Rubbers, Co., Ltd. (Thailand)</li> </ul>
2003		<ul style="list-style-type: none"> <li>●Ube Nylon (Thailand), Ltd. (Thailand)</li> <li>●Ube Board Co., Ltd.</li> <li>●Ube-Nitto Kasei Co., Ltd.</li> </ul>
2004		<ul style="list-style-type: none"> <li>●T&amp;U Electronics Co., Ltd.</li> <li>●Ube Electronics (Phils.) Inc. (Philippines)</li> </ul>
2005		●Ube Maintenance

Where a factory has obtained multiple certifications, only the year of the first certification is specified.

#### Certification of Workers Engaged in High Pressure Gas Safety and Completion Inspections

Type of Certification	Plant	Certification Date
Certification of workers engaged in high pressure gas safety and completion inspections (high pressure gas safety law)	●Sakai Factory	1999
	●Nishioki Factory	2001
	●Chiba Petrochemical Factory	2003
Certification of workers engaged in operating inspections of boilers and Class 1 pressure vessels (Industrial Safety and Health Law)	●Chiba Petrochemical Factory	1997
	●Sakai Factory	1998
	●Nishioki Factory	2000

High Pressure Gas Safety & Total Inspection Certified Inspector (high pressure gas safety law)  
**Total Inspection Certified Inspector:** Inspection of modifications to high pressure gas equipment by the Prefectural Governor (completed inspection), with certification of full self-inspection qualifications conferred by the Minister of Economy, Trade and Industry upon an individual of the Company.  
**Operating Inspection:** Involves the inspection of boiler operation and valve status by the Director of Labor Standards of the local Labor Jurisdiction Office. This system was designed to allow for inspections during operations.

A DMC Yellow Card



The UBE Group is continually working to improve its product safety systems and ensure that all products are safe and of a uniformly high standard of quality. Group-level product safety action plans are created through a process of deliberation, reporting and review by the Group Product Safety (Product Liability) Committee, which is chaired by the President.

## ● Material Safety Data Sheets (MSDS)<sup>\*1</sup>

UBE prepares MSDSs for products. These are distributed to customers to ensure that all products are used safely. Safety information is also shared within the UBE organization by posting MSDS information on the corporate intranet. Internal regulations include MSDS creation and updating standards that require the continuous collection and distribution of up-to-date information about hazards, toxic substances, law changes and other important matters. The UBE Group is continually working to ensure that all information is current, and in fiscal 2004 it updated or created MSDSs, including foreign language versions, for 260 products.

## ● Labeling

Product containers are affixed with warning labels<sup>\*2</sup> that indicate precautions necessary for safe handling. UBE is also actively implementing the "Container Emergency Card (label format)<sup>\*3</sup>" labeling system in its product line-up. This system is promoted by the Japan Chemical Industries Association.



## Message from an Employee



Environment and Safety Group Leader/Sakai Factory  
**Naritoshi Kitada**

### Making Plants Safe and Secure

After obtaining certification for its occupational safety and health management system in February 2005, the Sakai Factory has since established a safety management system based on the amended High-Pressure Gas Safety Law. As part of this process, employees underwent an educational program relating to compliance, risk reduction and the safety management system. As an instructor, I worked closely with individual employees, and I believe that we made significant progress toward the achievement of workplace safety. My goal now is to ensure that all workers cooperate in the effective implementation of this system so that we can all work on making the factory a safe and secure workplace.

## ● Distribution Safety

The Distribution Subcommittee works under the direction of Product Safety Committee to implement plans throughout the year, cooperating with local distribution groups to prevent accidents and ensure improved distribution quality.

The Committee works as a unit with the Group companies and associated companies to ensure distribution safety. It does so through periodic checks of Yellow Cards<sup>\*4</sup> (emergency cards), conveying and exchanging distribution information, conferring on accidents and initiating truck accident training drills, among other activities.

## ● Participation in Chemical Safety Management Initiatives in Japan and Overseas

UBE is actively involved in international initiatives concerning the safe management of chemicals, including the collection of safety information concerning high production volume (HPV) chemical products and toxicity assessment. In April 2005, a report presented by UBE, as the leading company of a consortium for sodium nitrite, was accepted at the International Evaluations Council (SIAM 20th) organized by the OECD in Paris.

A safety inspection program<sup>\*5</sup> has also been established within Japan. UBE plans to play an active role in this initiative.

Through the Japan Chemical Industry Association, UBE is actively supporting the ICCA's<sup>\*6</sup> Long-Range Research Initiative (LRI). The LRI focuses on the effects of chemical substances on human health and the environment.

## ● Green Purchasing<sup>\*7</sup>

UBE Group supports the provisions of the Green Purchase Law by selecting ecologically friendly "eco-products" when purchasing such office supplies as writing implements, stationery and uniforms. This report is printed on 100% recycled paper using vegetable inks.

## ● Response to Green Procurement by Customers

Starting from the tightening of European regulations concerning hazardous chemical substances that provided impetus to manufacturers, today, efforts are being made to reduce the use of harmful materials in all types of products, and this is particularly true in the electronics and electrical equipment manufacturing industry. UBE appreciates these "green" efforts and is doing its utmost to provide manufacturers with the correct materials for these products. UBE itself takes care in its own management of materials, applying company standards that have been established to improve its product sourcing and management of raw materials.



International Evaluations Council at the OECD in Paris

## GLOSSARY

<sup>\*1</sup> **MSDS:** The Material Safety Data Sheet, containing the product name, chemical and materials characteristics, applications, warnings and other information.  
<sup>\*2</sup> **Warning Label:** Showing the product name, address of contact and other legally required information, as well as precautionary information on dangers and safe handling.  
<sup>\*3</sup> **Container Emergency Card (label format):** A warning label with emergency contact information and UN chemical code number. Used when mixing shipments of different products or when shipping small orders where other information formats would be impractical.  
<sup>\*4</sup> **Yellow Card:** Emergency card, which is a warning label used when transporting products, with emergency contact information, product characteristics and handling instructions.

<sup>\*5</sup> **Domestic safety check program:** Also known as the "Japan Challenge Program," this initiative is unique to Japan. Its purpose is to gather information on the safety of existing chemical substances through industry-government collaboration, and to disseminate that information to the public. It was launched in June 2005.  
<sup>\*6</sup> **ICCA:** The International Council of Chemical Associations  
<sup>\*7</sup> **Green Purchasing:** the practice of basing purchase decisions not only on price and quality but also upon environmental impact, with preference given to items requiring minimum service and causing the least environmental burden.

# Outline of Responsible Care Activities

## The UBE Group is promoting its Responsible Care activities

Responsible Care Code	Fiscal 2004 Target	Fiscal 2004 Planning and Policy
Common Points	<ul style="list-style-type: none"> <li>RC Medium-term targets (FY2004–2006): Carrying out enhancement of sustainable environment, safety and health quality plans</li> </ul>	<ol style="list-style-type: none"> <li>Health and Safety: Obtaining OSHMS certification at all sites (by the end of fiscal 2006), implementation of health care and support (“Building Comfortable Workplaces”)</li> <li>Process safety and disaster prevention: Thorough facility management</li> <li>Environmental preservation: Further improvement of environmental performance</li> <li>Product safety: Fulfillment of chemical safety management and preclusion of quality claims</li> </ol>
Management system		<ol style="list-style-type: none"> <li>Promotion of compliance activities</li> <li>Continued updating and management of regulations and standards relating to the environment, safety and health</li> <li>Implementation of “Environmental and Safety audits” in Japan and overseas</li> <li>Implementation of Environment and Safety inspections and special inspections</li> <li>Meetings of “Environment and Safety Committee” and “Group Product Safety (PL) Committee”</li> </ol>
Environmental preservation	<ul style="list-style-type: none"> <li>Reducing output of substances that negatively impact on the environment</li> </ul>	<ol style="list-style-type: none"> <li>Promotion of measures against global warming</li> <li>Reduction of waste and promotion of effective utilization</li> <li>Establishment of targets for reduction of harmful emissions (PRTR substances, VOCs, etc.) and promotion of efforts to achieve those targets</li> </ol>
Process safety and disaster prevention	<ul style="list-style-type: none"> <li>Elimination of facility accident</li> </ul>	<ol style="list-style-type: none"> <li>Regular and thorough inspection of facilities and implementation of simplified HAZOPs for existing facilities</li> <li>Inclusion of safety assessments in planning for new facilities and expansion projects, and follow-up assessments at implementation stage</li> <li>Fulfillment of high-pressure gas facility inspections and inspection management system</li> </ol>
Occupational safety and health	<p>&lt;Health management&gt;</p> <ul style="list-style-type: none"> <li>Development and reinforcement of health management systems (“Building Comfortable Workplaces”)</li> </ul> <p>&lt;Safety and Health&gt;</p> <ul style="list-style-type: none"> <li>Obtaining OSHMS certification</li> </ul>	<ol style="list-style-type: none"> <li>Facilitation and implementation of health management system in Ube area</li> <li>Promotion and implementation of health management system in Tokyo area</li> <li>Full implementation of risk assessments and follow-up measures, obtaining of OSHMS certification, or operation of system with a view to certification</li> <li>Training of internal auditors</li> <li>Effective use of safety posters and monitoring of results</li> <li>Effective use of occupational accident information</li> <li>Improvement of environmental and safety audits and inspections</li> </ol>
Distribution safety	<ul style="list-style-type: none"> <li>Container yellow card introduction ratio: 80%</li> </ul>	<ol style="list-style-type: none"> <li>Management of updating of distribution safety management guidelines</li> <li>Holding of regional distribution councils</li> <li>Measures to prevent distribution complaints and implementation of measures of enhancement of distribution quality</li> </ol>
Chemicals and product safety	<ul style="list-style-type: none"> <li>Improvement of chemical safety management and preclusion of quality-related complaints</li> </ul>	<ol style="list-style-type: none"> <li>PL and safety</li> <li>Quality and safety</li> <li>Improvement of product-related standards and guidelines, dissemination of product safety-related information</li> </ol>
Dialogue with communities	<ul style="list-style-type: none"> <li>Promotion of dialogue with communities</li> <li>Information disclosure, and improvement of transparency</li> </ul>	<ol style="list-style-type: none"> <li>Implementation of RC dialogue</li> <li>Fulfillment of RC Report</li> </ol>

 Achieved
  Largely achieved
  Not yet achieved

Fiscal 2004 Activity Report	Evaluation	Pages included
<ul style="list-style-type: none"> <li>• Issued RC report with CSR content, announced aggressive RC promotion</li> <li>• Published RC report on UBE website; discussed RC through RC regional dialogue meetings (Ube/Onoda district)</li> <li>• Based on multi-level education, implemented environment and safety education curriculum for new employees through directors</li> <li>• Implemented emergency training at all factories; revised E-manuals; simulation exercises</li> </ul>	   	1, 20, 21 16 14 29
<ol style="list-style-type: none"> <li>1. Establishment of dedicated pages on corporate intranet, holding of five meetings of Compliance Committee with attendance of legal advisor</li> <li>2. Updating and management of product safety, process safety and disaster prevention and distribution safety-related regulations, establishment of assessment guidelines for new chemical products and substances, and other related activities</li> <li>3. Audits of 10 business offices and 6 group companies in Japan and 4 overseas plants in Thailand, Spain and the United States</li> <li>4. Environment and safety inspections of key business offices and group companies (total of 16 locations) by top management, and special inspections (3 locations) and voluntary inspections by in-house companies</li> <li>5. Meetings of both committees held twice a year, and PDCA (Plan, Do, Check, Action) cycle promoted</li> </ol>	    	11 25, 28 22, 41 22, 41 22,41
<ol style="list-style-type: none"> <li>1. Meeting of Global Environment Preservation Promotion Committee (reduction of greenhouse gas emissions) to promote implementation of PDCA</li> <li>2. Reduction of industrial waste             <ul style="list-style-type: none"> <li>• Continued effort to achieve zero emission status for cement division</li> <li>• Improvement of recycling ratio to 63% (78% at non-consolidated level)</li> <li>• Increase in final outside disposal volume due to temporary waste</li> </ul> </li> <li>3. Noxious air pollutants reduced to 93% of UBE's 1995 levels, promotion of reduction of PRTR/VOC substances</li> </ol>	    	34, 35 39, 40 33, 38
<ol style="list-style-type: none"> <li>1. Follow-up monitoring of issues identified by audits, provision of information and support to business offices</li> <li>2. Prior plant safety assessments (37 implemented)</li> <li>3. Review and improvement of high-pressure gas completion inspection and safety inspection and management systems in time for enactment of law</li> </ol>	  	29 22, 24
<ol style="list-style-type: none"> <li>1. Promotion of smoker segregation at workplaces (Ube, Tokyo)</li> <li>2. Completion of mental health training for all management (Ube, Tokyo)</li> <li>1-1 Progress checks during business office audits/inspections, full implementation of risk assessment at UBE business offices</li> <li>1-2 Obtaining of OSHMS certification at 3 sites (Ube Aluminum Wheel Factory, Sakai Factory, Ube Cement Factory)</li> <li>2. Implementation of education for new employees and newly appointed supervisors and training for internal auditors</li> <li>3. Issuance of notifications requesting use of safety posters (June, December)</li> <li>4. Effective use of occupational accident information, analysis of UBE Group accidents and distribution of results</li> <li>5. Comprehensive listing of audit/inspection results, introduction of unique activities, mini-audits of 7 sites (November–December)</li> </ol>	      	13 13 41 24 15, 29
<ol style="list-style-type: none"> <li>1. Distribution safety management guidelines updated</li> <li>2. Held regional distribution council meetings (western and eastern regions)</li> <li>3. Measures to prevent distribution-related claims and enhance distribution quality (active participation in training for drivers employed by distribution companies, distribution quality audits, etc.)</li> <li>1-1 Scheduled MSDS update (construction materials added to coverage, results reflected in corporate data base, 260 products checked, resulting in creation or updating of sheets)</li> <li>1-2 For external open of MSDS, consideration of procedures for 2005 based on checks of external situation</li> <li>1-3 Labeling improvements fully implemented at Ube Chemical Factory and Sakai Factory, implementation for construction materials also begun</li> <li>1-4 HPV safety assessment: assessment documents presented by UBE (as a leader of Sodium Nitrite Consortium) at international meeting in April 2005</li> <li>1-5 PL assessment of new products (5)</li> <li>2-1 In-depth measures to prevent recurrences and leaks: spot quality audits, elimination of contamination factors</li> <li>2-2 Management of hazardous substances in raw materials procured from suppliers: measures relating to corporate and external officials responsible for actions under RoHS Directive, survey of purchased items in preparation for green purchasing measures</li> <li>3. Development of standards and guidelines, dissemination of related information: ① establishment of new chemical quality assessment guidelines, ② revision of distribution safety management guidelines and environment substance management guidelines, ③ implementation of labeling and REACH/RoHS education</li> </ol>	          	25 25 25 25 25 25 25 25
<ol style="list-style-type: none"> <li>1-1 2nd RC community dialogue meeting held in Ube-Onoda district (February 2005), attended by local government officials, residents (local associations, NGOs and others), JRCC member companies</li> <li>1-2 Participation in 5th RC regional dialogue meeting in Chiba district</li> <li>2-1 Publication of RC report (Japanese and English versions) with expanded CSR content and simultaneous inclusion on website</li> <li>2-2 Holding of Company Announcement Meeting for RC Report</li> </ol>	   	16 16

# Occupational Safety and Health

Under the Environmental and Safety Principle: "Respecting people means putting safety first in all areas," the UBE Group promotes safety, health and plant safety measures at all offices and facilities.

## Occupational Accident Prevention Activities

- We implement various safety and disaster prevention activities, including danger prediction training (so called KYT), total productive maintenance (TPM), "hiyari-hat" activities, "identifying and naming," accident case study, and risk assessment in an effort to prevent disasters and accidents.



Training in the use of safety-lines to prevent falls

- All factories held safety and health committees with management and labor representatives. These meet every month to receive and discuss safety reports. Each meeting ends with a recitation of the "5 do's" and "5 don'ts" from a safety and accident reduction poster based ideas gathered from every workplace in the UBE Group.



The UBE Group safety poster

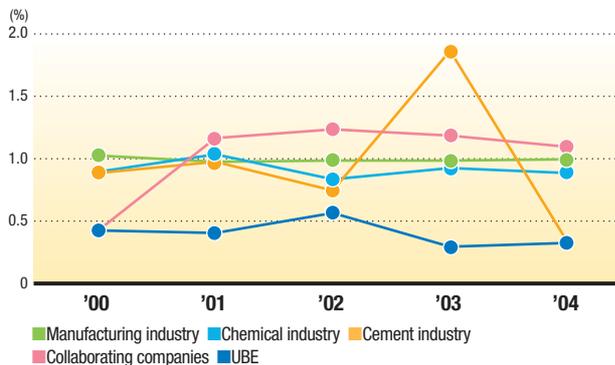
- UBE has established Occupational Safety and Health Management Systems (OSHMS) as a framework for its accident reduction efforts. It is also working to achieve certification of these systems. Details of progress made can be found on Page 24.

- The UBE Group holds an annual Group Safety and Health Conference where awards are presented and employees and affiliated companies have an opportunity to increase their awareness of safety issues.



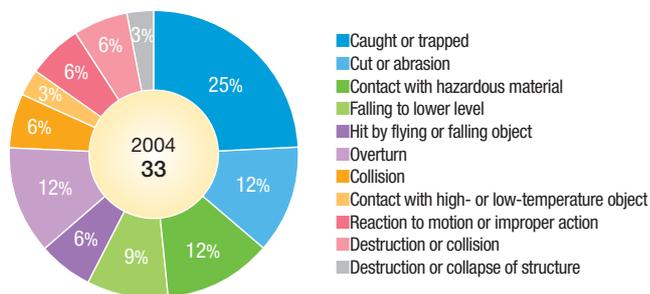
The UBE Group Safety and Health Conference

## Lost-time Injury Frequency Rate (UBE)



Notes: (1) Data on lost-time injury frequency rates for the manufacturing, chemical, and cement industries are based on Ministry of Health, Labour, and Welfare data.  
 (2) Frequency rate = number of lost-time injuries/million working hours

## Breakdown of Accidents (Lost-Time and Non-Lost-Time Accidents Involving Employees of UBE and its collaborating companies)



## Prior Safety Assessments of Chemical Substances

Based on procedures designated in safety assessment standards, we also perform prior safety assessments of chemical substances that we have developed or plan to start handling. In fiscal 2004, the UBE Group performed 33 prior chemical substance safety assessments.

# Process Safety and Disaster Prevention

Safe operation of factories and facilities is a major concern not only of UBE employees but of local citizens, as well. The UBE Group is concerned from its highest ranks down to its most basic policies with operational and employee safety, and this concern is manifest not only in written procedures and directives but also in actual, regular on-site emergency drills and safety patrols. UBE's employees receive different kinds of safety training that serves to build a culture of safety throughout the Group.

## Safety Education

Through an overall education policy, immediately after joining the Company, new employees are taught the importance of and correct attitude toward the environment, safety and health, and practical training programs are implemented in each workplace. In addition, managers and executives are also taught about the regulations and laws applied.

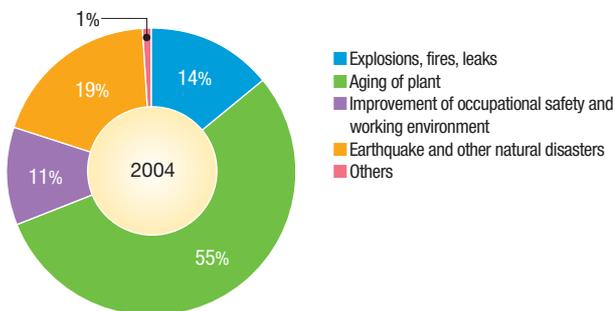
## Prior Plant Safety Assessments

The methods stipulated in the in-house plant safety assessment standards are used when carrying out prior and post plant safety assessment on newly installed, additional or modified facility, and when establishing or amending related regulations. In fiscal 2004, the UBE Group carried out 37 assessments.

## Process Safety and Disaster Prevention Measures

In fiscal 2004, the UBE Group spent ¥5.74 billion on safety and security measures. (¥2.95 billion in fiscal 2003.) This reflects a substantial increase in recovery costs resulting from typhoon damage.

Breakdown of Process Safety and Disaster Prevention Expenditure



## Emergency Training

Each month a variety of safety-related activities are implemented at UBE Group business offices. These include emergency drills, reciprocal workplace checks by safety supervisors, and reciprocal safety patrols with cooperating contractors. Training information is also provided on websites to assist those who cannot participate directly in training and patrols.

In November 2004, a comprehensive land and maritime disas-

ter drill was conducted at the Nishioki Factory with the participation of prefectural and city authorities, firefighters, police officers and neighboring companies. The scenario for the drill was a major disaster, including an oil spill, caused by an earthquake.



Comprehensive emergency drills are conducted at petroleum complexes and other facilities.

## Safety Education

We encourage our employees to obtain legal qualifications for the safe operation and management of our workplaces.

Qualification	UBE Group (persons)	UBE (persons)
Pollution control manager and chief	545	376
Environmental measurement expert	6	5
Working environment measurement expert	55	42
Health supervisor	275	196
Energy supervisor	217	147
Hazardous materials supervisor	4,397	3,312
Operations chief for work handling		
specified chemical substances	859	622
High-pressure gas production safety officer	1,077	928
Boiler safety officer	1,297	989

(As of April 2005)

### Actions in Response to Explosion in Nylon Polymerization Facility

On July 30, 2004, a polymerization tower ruptured and an explosion occurred in nylon manufacturing facilities at the Ube Chemical Factory in Ube City, Yamaguchi Prefecture. Fortunately the accident did not result in injuries or the leakage of chemical substances. However, we sincerely apologize for the serious disruption and concern that this accident caused for local residents and users of our products.

Immediately after the accident, an accident investigation committee was formed. This group thoroughly investigated the cause of the accident and developed measures to prevent a recurrence. The committee's report was distributed to the relevant facilities and offices within the UBE Group, and steps were taken to prevent similar accidents, including an intensive review of safety measures for facilities of the same type as those affected by the accident.

Under the guidance of the government agencies concerned, UBE formed an internal "Nylon Accident Recovery Project" and prepared an improvement plan incorporating comprehensive countermeasures.

#### • • • • • The methods stipulated • • • • •

Safety enhancement work that can be carried out immediately will be completed by the end of fiscal 2005. We aim to complete comprehensive countermeasures involving group-wide process improvements by fiscal 2011. These measures will result in the updating of nylon manufacturing facilities, leading to further improvements in safety and facility management.

# Environmental Accounting

Since FY1999, the UBE Group has introduced environmental accounting as a tool for quantitatively understanding and evaluating the costs and effects of environmental preservation in the Group business activities and promoting more efficient sustained environmental preservation.

For environment accounting to be effective, it must be incorporated into a company environmental management, be allowed to

function as a decision-making tool, and be used to disclose accurate information on the results of the Company environmental preservation activities. The UBE Group will continue to carry out various measures aimed at establishing more effective environmental accounting. The following tables show the results of activities in fiscal 2004.

## Environmental Preservation Cost

(Unit: ¥100 million)

Cost Category	Main Activity	Capital Investment			Cost		
		FY2003	FY2004	Difference	FY2003	FY2004	Difference
Cost by business area	Pollution prevention	8.9	9.3	0.4	42.2	43.7	1.5
	Global environment preservation	2.5	2.2	-0.3	1.3	1.1	-0.2
	Resource recycling	3.7	13.8	10.1	12.4	11.6	-0.8
Upstream/downstream costs	Costs of packaging recycling, green purchasing	0.1	5.8	5.7	5.3	5.8	0.5
Costs of management activities	Costs of acquiring, running and maintaining environmental management systems	0.1	0.0	-0.1	4.7	4.7	0.0
Research and development costs	R&D costs of environment-friendly products and green technologies	0.9	0.1	-0.8	3.4	3.4	0.0
Costs of social activities	Costs of greening and beautifying offices/facilities and their surroundings	0.2	0.1	-0.1	1.8	2.3	0.5
Costs of cleaning up environmental damage	Environment-related assessment charges	0.0	0.0	0.0	3.0	3.8	0.8
Total		16.4	31.3	14.9	74.1	76.4	2.3

### Calculation of Environmental Preservation Cost for Fiscal 2004

Capital investment increased by ¥1,490 million compared with the fiscal 2003 level to ¥3,130 million, mainly due to higher resource recycling costs, especially the cost of installing a chlorine by-pass system (see Page 2).

Cost increased by ¥230 million over fiscal 2003 to ¥7,640 million, mainly due to increases associated with the start of full-scale operation of new power generation facilities for the power wholesaling (IPP) business.

## UBE Group Environmental Accounting Method

- Reporting period: Fiscal 2004 (April 2004–March 2005)
- Companies covered: See “Editorial Policy” (Page 47)
- Calculations are based on the “Environmental Accounting Guidelines (FY2005 version)” of the Ministry of the Environment.
- The economic effect is the effect obtained in fiscal 2004 as a result of environmental protection activities. This is limited to what can be calculated rationally, and excludes hypothetical calculations such as the avoidance of the cost of cleaning up environmental damage.
- Internal transactions within the UBE Group are not included.

### Effect

#### 1 Environmental Preservation Effect

Principal effects		Unit	FY2003	FY2004	Difference	page
Pollution prevention activities	SOx emissions	Tons	2,975	2,920	-55	36
	NOx emissions	Tons	20,295	19,103	-1,192	
	Dust emissions	Tons	503	542	39	
	Water usage	1,000 m <sup>3</sup>	94,033	104,363	10,330	37
	Water effluent	1,000 m <sup>3</sup>	188,344	195,158	6,814	
	COD emissions	Tons	999	1,011	12	
	Total nitrogen emissions	Tons	1,192	995	-197	
Total phosphorus emissions	Tons	37	29	-8		
Global environment preservation activities	Energy usage	1,000 kl-oil	1,973	1,852	-121	34
	CO <sub>2</sub> emissions (from energy)	1,000 t-C	1,742	1,659	-83	
	Benzene	Tons	38	30	-8	38
	1,3-Butadiene	Tons	36	24	-12	
	1,2-Dichloroethane	Tons	0.2	0.7	0.5	
	Chloroform	Tons	0.6	0.0	-0.6	
	Dichloromethane	Tons	0.8	1.7	0.9	
Acrylonitrile	Tons	0.0	0.0	0.0		
Resource recycling activities	Final waste disposal volume	Tons	13,037	23,950	10,913	39
	Recycled waste volume	Tons	282,485	340,948	58,463	

#### 2 Economic Effect

(Unit: ¥100 million)

	2003	2004	Difference
Income effect	52.5	64.5	12.0
Savings effect	34.5	42.4	7.9

## About the accounting results

### 1 Environmental preservation effect

Continuing efforts to reduce emissions of harmful chemicals resulted in lower emissions of some items, such as SOx and NOx. However, the results deteriorated in some categories because of the inclusion of Ube-Nitto Kasei Co., Ltd. for the first time, and because of the full-scale start-up of the power wholesaling (IPP) business.

### 2 Economic effect

The income effect was ¥6,450 million, reflecting an increase in income for wastes accepted as fuel and raw materials for cement. The saving effect was ¥3,450 million, reflecting the results of promoting energy saving.

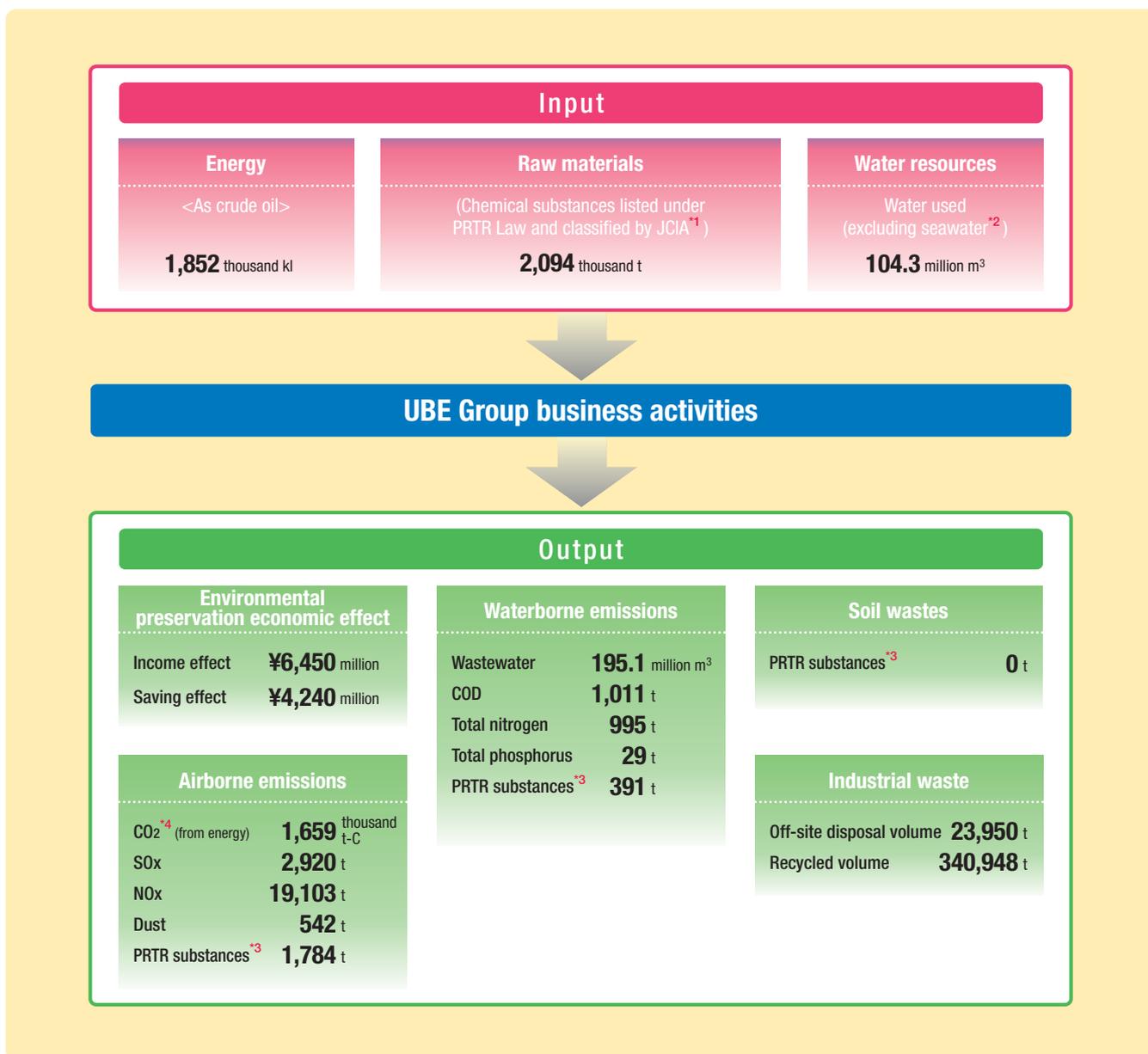
# Environmental Preservation

## Environmental Performance

With more than a century since its establishment, the UBE Group has developed a broad range of business operations, including Chemicals & Plastics, Specialty Chemicals & Products, Cement & Construction Materials, Machinery and Metal Products and Energy & Environment.

The Group recognizes that environment-friendly management is a vital issue for continuing to survive and grow in the 21st century. "Environmentally oriented business practices" is one of the basic

policies advocated by the New 21•UBE Plan II, the Group's 3-year, mid-term business plan, for which 2004 is the first year and which focuses on "Speed and Trust" as a key term. In the future, the Group will promote business activities that contribute to the formation of a recycling-conscious society by promoting measures to prevent global warming, reducing noxious air pollutants, cutting industrial wastes, and using wastes and resources effectively. At the same time, we will contribute to the formation of a sustainable society through our products and services.



Notes: See Page 47 for details of the scope of performance data for the UBE Group.

## GLOSSARY

- \*1 Japan Chemical Industry Association (JCIA)
- \*2 The difference between the amounts of water usage and wastewater is due to inclusion of seawater in the wastewater volume.
- \*3 PRTR figures are based on amounts of 480 substances regulated by the JCIA (see page 33 for reference).
- \*4 Only CO<sub>2</sub> from energy sources is stated.

## PRTR<sup>\*1</sup> (Pollutant Release and Transfer Register) System

The UBE Group manages to reduce discharges of chemical substances from its facilities into the environment in recognizing the importance of chemical management.

In addition to 354 substances designated under the PRTR law, the chemical industry controls a total of 480 substances, which have voluntarily been added by the Japan Chemical Industries Association under Responsible Care activities. Of these, 76 sub-

stances are handled by the UBE Group, and 63 by UBE. For the substances in the PRTR list, UBE Group handles 44 substances, and UBE, 31.

Total emissions increased by 17% from fiscal 2003 due to increased production volume and the number of companies collecting data. For emission of each substance, we endeavored to reduce it by installing and operating the exhaust gas treatment systems and improving production processes, such as a closed system adoption and alternative solvent usage.

### UBE Group Data on PRTR Substances (Unit: t)

	Handling Volume (Volume used/produced)	Emission into atmosphere	Emission into water	Emission into soil	Total emission	Emission ratio compared with fiscal 2003	Transfer volume*
PRTR Law basis	458,945	406.0	105.2	0.0	511.2	11%	762.1
JCIA basis	2,093,867	1,783.5	391.4	0.0	2,174.9	17%	1,268.1

\* Transfer volume: volume treated externally as waste

### Individual Emission Volumes (Top 12 Substances and Dioxins)

No. shown by PRTR law	Substance	CAS No.	Handling volume (t)	Emission volume			Total (t)	Emission ratio compared with fiscal 2003	Transfers volume
				Atmosphere	Water	Soil			
227	Toluene	108-88-3	906	192.2	19.1	0.0	211.3	4%	142
63	Xylene	*	206	79.0	0.2	0.0	79.2	58%	25
61	ε-Caprolactam	105-60-2	234,128	0.0	74.5	0.0	74.5	36%	5
40	Ethylbenzene	100-41-4	33	33.2	0.0	0.0	33.2	67%	0
299	Benzene	71-43-2	96,731	29.5	0.5	0.0	30.0	-22%	0
268	1,3-Butadiene	106-99-0	97,604	24.1	0.0	0.0	24.1	-33%	0
102	Vinyl acetate	108-05-4	2,935	21.8	0.0	0.0	21.8	3%	0
85	Chlorodifluoromethane (HCFC-22)	75-45-6	13	13.2	0.0	0.0	13.2	2%	0
224	1,3,5-Trimethylbenzene	108-67-8	7	7.2	0.0	0.0	7.2	24%	0
304	Boron and its compounds	*	108	0.5	6.3	0.0	6.8	-5%	1
1	Water-soluble compounds of zinc	*	3	0.0	2.6	0.0	2.6	-2%	0
145	Dichloromethane	75-09-2	94	1.7	0.0	0.0	1.7	-30%	14
179	Dioxins**	*	—	1,002	21	0	1,023	319%	29

CAS No.: Chemical Abstract Service registry number

\* Isomer mixture

\*\* Unit for dioxins: mg-TEQ/year

### PCB (Polychlorinated biphenyl)

The UBE Group stores, whether currently used or not longer in use, PCB-containing transformers, condensers and fluorescent lighting stabilizers in its factories properly in according to the Law Concerning Special Measures against PCB waste. We plan, up to July 2016, to appropriately store and treat PCBs.

## GLOSSARY

<sup>\*1</sup> **PRTR:** The PRTR system aims to track and identify the quantity of chemical substances that are discharged into the environment or transferred to an external location in the form of waste by plants and other facilities in the course of their business activities, and seeks to control and reduce the impact on the environment through the appropriate use and control of chemical substances. The contents of the register are reported to the Government and other official bodies. Based on the 1999 Law Concerning Reporting, etc., of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in their Management (also known as the Chemical Substance Management Promotion Law, or "PRTR Law"), businesses with 21 employees or more handling any of the 354 class 1 special chemical substances (one ton or more a year, or half a ton or more a year if carcinogenic) must report the amount of wastes discharged or transferred from their business premises.

## The UBE Group has reduced its CO<sub>2</sub> emissions by over 9% from the fiscal 1990 level and is working to achieve further improvements in energy consumption per unit of production.

### Global Warming Prevention Measures

Under the Kyoto Protocol, which came into effect in February 2005, Japan is obligated to reduce its average output of greenhouse gases between 2008 and 2012 by 6% relative to the base year (1990). This will require a reduction of at least 14% from the present level.

In fiscal 2000, the UBE Group has responded to this situation by formulating its Medium/Long-Term Global Warming Prevention Strategy, which calls for a reduction of at least 6% in its CO<sub>2</sub> emissions by 2010. Since fiscal 2001 the Global Environment

Preservation Promotion Committee has been coordinating the implementation of reduction and monitoring measures.

In fiscal 2004, the UBE Group achieved a substantial reduction in CO<sub>2</sub> emissions through a range of initiatives, including the diversification of fuel use through the introduction of biomass and other waste-based fuels, and a reduction in cement production. In the years ahead the UBE Group aims to achieve continuing improvement in its energy efficiency at the rate of at least 1% annually through efforts that exceed the targets set down in the voluntary action plan of the Nippon Keidanren (Japan Business Federation), as shown in the table below.

### UBE Group Comprehensive Targets Targeting a comprehensive reduction of CO<sub>2</sub> emissions to more than 6% of fiscal 1990 levels by fiscal 2010

#### Targets of voluntary action plan by segment and industry

- Chemical/Japan Chemical Industry Association: 10% reduction in Unit Energy Consumption by fiscal 2010 (fiscal 1990 basis)
- Cement & Construction Materials/Cement Association: 3% reduction in Unit Energy Consumption by fiscal 2010 (fiscal 1990 basis)
- Machinery & Metal Products/Japan Industrial Machine Association Target: 1% per year reduction in Unit Energy Consumption by fiscal 2010 (fiscal 1997 basis)

### Energy Consumption and Unit Energy Consumption

Because of the effect of adopting the NSP\*2 system in cement kilns in the past, recent diversification of energy sources and wastes, along with some production decreases, energy consumption and unit energy consumption decreased slightly. Ongoing efforts to conserve energy brought a further improvement in unit energy consumption in fiscal 2004.

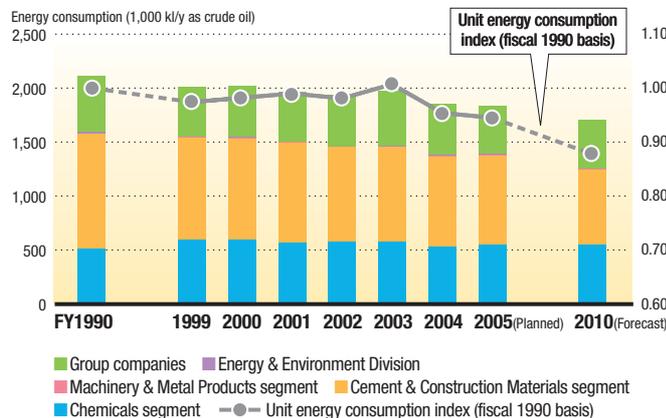
In fiscal 2005, unit energy consumption will be improved as a result of energy saving activities. However, total energy consumption is likely to remain unchanged because of production growth and other factors.

### CO<sub>2</sub> Emissions

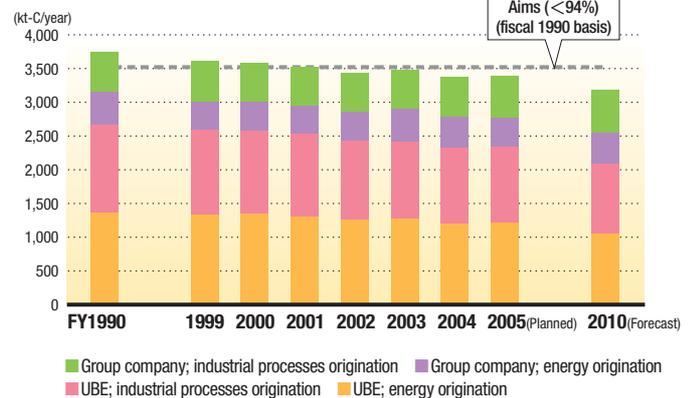
With the reduction in energy consumption as described above, CO<sub>2</sub> emissions also fell (fiscal 1990 basis). In fiscal 2004, we already succeeded in reducing energy consumption by more than 9% (fiscal 1990 basis). In expectation of future business expansion, we will continue to reduce CO<sub>2</sub> emissions, by focussing on our energy saving activities.

Note: As noted in the definition of the scope of this report on Page 47, the organizational boundaries have been adjusted to reflect the Guidelines for Calculating Greenhouse Gas Emissions by Businesses (Ministry of the Environment, Draft Version 1.5). This change applies to results from fiscal 2004 onwards.

### Energy Consumption and Unit Energy Consumption Index



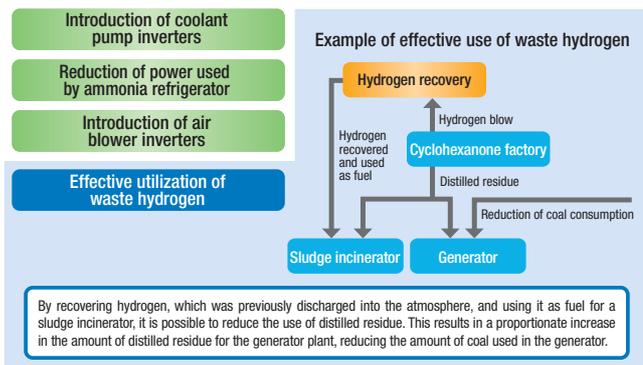
### CO<sub>2</sub> emissions



\*1 NSP: Abbreviation for New Suspension Pre-heater, a cement kiln with an attached pre-heater. The process utilizes a rotary kiln with a pre-heater, which heats the feedstock, as well as a calciner.

## Case Study: Energy Saving Initiative in a Factory

The Ube Chemical Factory received subsidies for the four projects shown below, after applying under a Ministry of Economy, Trade and Industry scheme to support business projects to rationalize energy use. Energy preservation projects implemented in fiscal 2004 resulted in a total reduction in CO<sub>2</sub> emissions equivalent to approximately 1,800 tons-C per year.



## Measures for Green Distribution

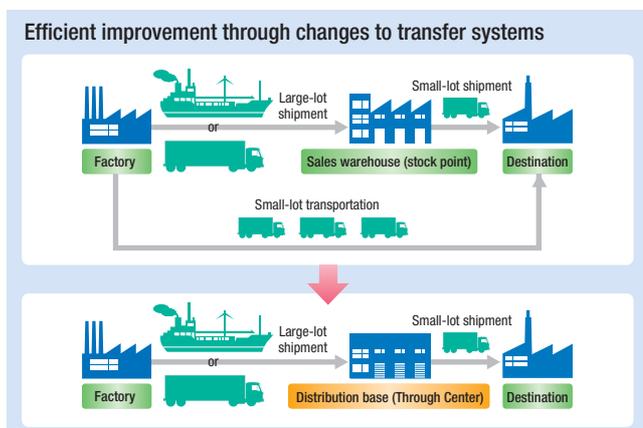
UBE's Procurement & Logistics Division is working to improve transportation efficiency and implement a modal shift. While the aim of these measures is to reduce costs they also form part of UBE's RC activities because of their role in reducing CO<sub>2</sub> emissions during transportation. In fiscal 2005, UBE aims to reduce transport-related CO<sub>2</sub> emissions by 5% relative to the fiscal 2003 level.

### ● Analysis of Activities

#### (1) Improving Transportation Efficiency (Mixed loading of packaged goods, increased use of direct transportation)

Since January 2005, products shipped in small lots (over 100kg) from the Ube Chemical Factory and the Chiba Petrochemical Factory have been loaded together on the same transportation system to increase the size of each shipment. ⇒ **Improvement in transportation efficiency**

In addition, sales warehouses (stock points) have been transferred to distribution bases (through centers) with sorting and tem-



porary storage capabilities. UBE is currently studying ways to reduce the amount of storage required at shipment destinations. ⇒ **Increased use of direct transportation**

#### (2) Modal Shift (from trucks to rail and ferries)

##### ① Example of rail use

In May 2004, the Chiba Petrochemical Factory changed the method used to deliver products to specific customers in the Tokai region. Instead of trucking the products in flecon bags, it began to transport them by rail using hopper containers. The Ministry of Land, Infrastructure and Transport has approved this initiative as a pilot program leading to the creation of an environment-friendly distribution structure.

##### ② Example of ferry use

In January 2005, the UBE Chemical Factory switched from trucking to ferry transportation for the delivery of products to specific users in the Kanto region. Delivery times and costs are often the most important factors influencing customer satisfaction at the distribution stage. In many cases there are cost disadvantages with rail transportation and time disadvantages with maritime transportation.

UBE will continue to expand and promote the modal shift through ongoing initiatives involving sales staff and customers. For example, it is working to reduce the incidence of urgent shipments by obtaining advance order information from customers.

### ● Future Activities

The UBE Group plans to implement three measures to reduce environmental loads and improve distribution efficiency.

#### ① Distribution restructuring

Direct shipping to customers, large-lot shipment, modal shift to rail and sea transportation, ensuring appropriate load sizes, etc.

#### ② Expansion of distribution volumes

Shared internal and external transportation (including distribution of returned goods, such as recovery equipment), and two-way transportation of procured items, etc.

#### ③ Conforming to truck exhaust standards and improving fuel efficiency

Replacement of UBE-owned vehicles with low-pollution vehicles, encouraging distribution contractors to use low-pollution vehicles and practice eco-driving (including requests to achieve ISO14001 and green management certification, environmental auditing)

### Message from an Employee



Purchasing and Distribution Division, Team Leader  
**Katsushi Sakuragi**

### Reducing Transport-Related CO<sub>2</sub> Emissions

Unless action is taken, transport-related CO<sub>2</sub> emissions are expected to increase by around 40% over fiscal 1990 levels by 2010. Under the Kyoto Protocol, the government has formulated a plan to limit the increase by 2010 to 15% compared with the fiscal 1990 level. In addition, the government plans to make the establishment of energy saving plans and the reporting of progress mandatory for transportation companies under the amended Energy Conservation Law, which is expected to come into effect in April 2006.

UBE has taken various steps to improve the efficiency of its distribution operations. We will continue to work with transportation companies, our business divisions and customers to strengthen these environmental measures.

### Controlling Air Pollution

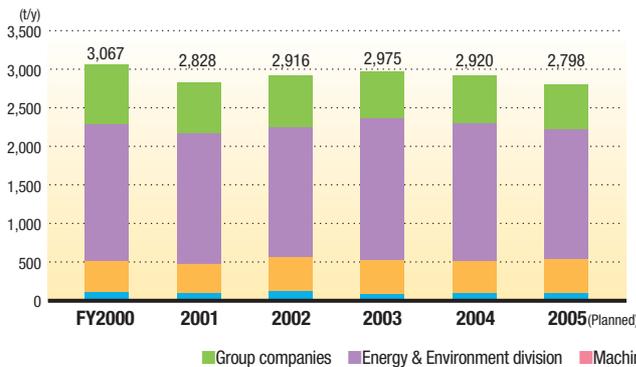
UBE has been working in cooperation with the public, academics and administrators to prevent air pollution since 1949, which was long before air pollution first began to attract attention as an environmental issue. Today, desulfurization, denitrification, and dust removal processes developed by UBE are used to eliminate or reduce such health-threatening substances as sulfur oxides (SOx\*1), nitrogen oxides (NOx\*2), and dust.

Efforts to reduce emissions include monitoring emissions at their sources and taking emergency measures at the first sign of any change in the natural environment such as photochemical smog warning. In addition, the Ube Environment Preservation Council continually monitors environmental measurements taken at various sites around Ube City. This measurement data is reflected in factory operations according to air pollution preventing management standards, which are already established.

#### SOx Emissions

Although we planned to reduce SOx emissions by 6% from fiscal 2003 to fiscal 2004, an IPP venture established by an UBE Group company was absorbed by UBE in October 2004, with the result that emissions could only be reduced by 2%. In fiscal 2005, we plan to reduce SOx emissions by 3% from the fiscal 2004 level.

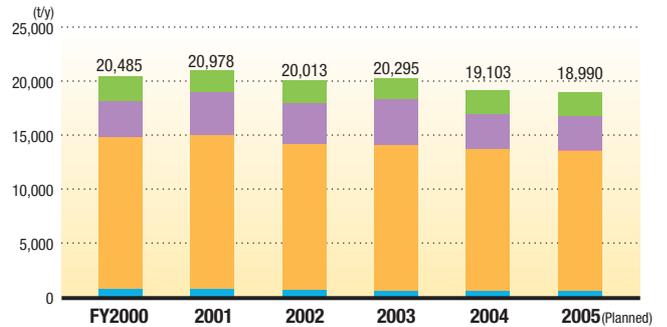
SOx emissions



#### NOx Emissions

While we planned in fiscal 2004 to reduce NOx emissions by 4% from fiscal 2003 levels, the actual reduction was 6%. A major reason for this outcome was the improvement of concentration levels in cement kiln emissions. In fiscal 2005, we plan to reduce NOx emissions by 1% from the 2004 level.

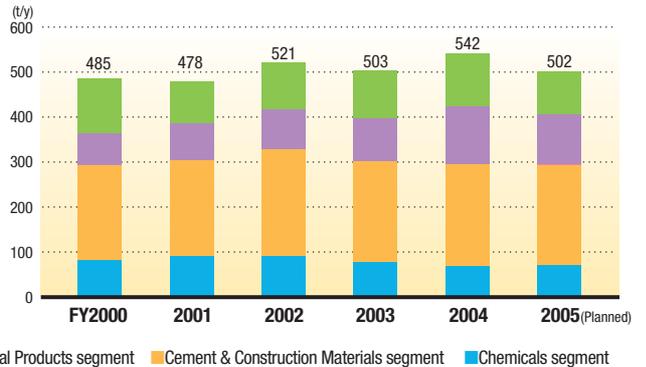
NOx Emissions



#### Dust Emissions

Consistent efforts to reduce dust emissions were successful. In fiscal 2004, however, UBE's absorption of the IPP business resulted in an increase of 8%. In fiscal 2005, we plan to reduce dust emissions by 8% from the fiscal 2004 level.

Dust Emissions



#### Message from an Employee



Environment and Safety and Quality Assurance Group Leader/Chiba Petrochemical Factory  
**Hiroharu Tanaka**

#### About Controlling Air Pollution

The Chiba Petrochemical Factory was one of the first factories in UBE Group to make environmental preservation its first priority. We have worked in particular to reduce emissions of PRTR substances. Specific measures include the replacement of benzene which was used as a solvent with other substance, and the installation of facilities to prevent

atmospheric releases of butadiene, which is an important raw material. Efforts such as these have drastically reduced emission levels. We have also improved our software. For example, we have introduced an Odor Monitoring System under which people who do not work with solvents monitor odors within the factory. We aim to create systems that prevent even small abnormalities from being overlooked.

#### GLOSSARY

\*1 SOx: Sulfur oxides originate in the sulfur (S) component of fuels. Boilers are the main producers of SOx.

\*2 NOx: Nitrogen oxides originate in the nitrogen (N) components of fuel and air when a fuel is combusted in air. Boilers and cement kilns are the main sources of NOx.

## Controlling Water Pollution

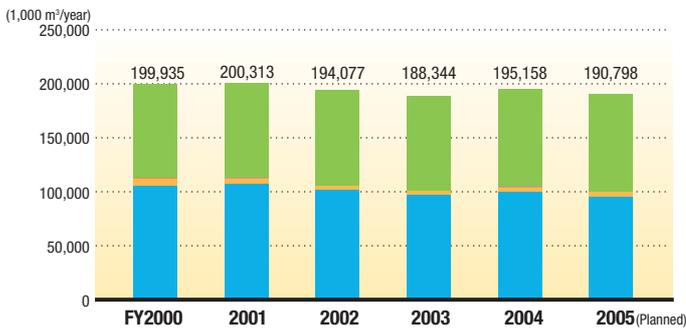
Such laws as the 5th Area-wide Water Pollutant Regulations\*1 for enclosed sea areas like the Seto Inland Sea have been toughened. The UBE Group, and in particular our chemical plants, which can have a major impact on water quality, discharge water only after it has been purified by such means as activated-sludge or wet oxide processes, and the discharge is always strictly monitored.

The Group also constantly works to reduce COD\*2, total nitrogen\*3 and total phosphorus\*3, typical indicators of water pollution.

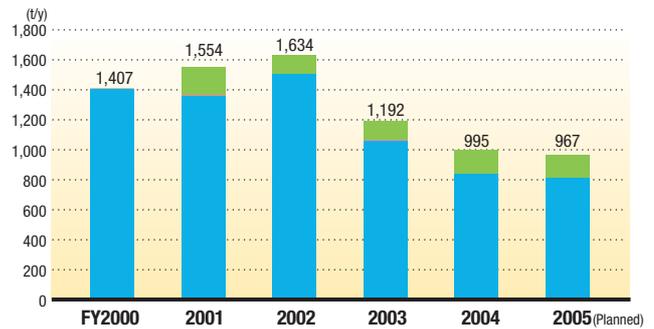


A wastewater treatment facility at the UBE Chemical Factory

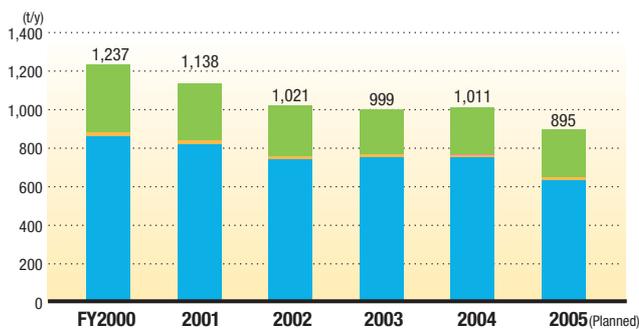
### Wastewater Effluent Discharges



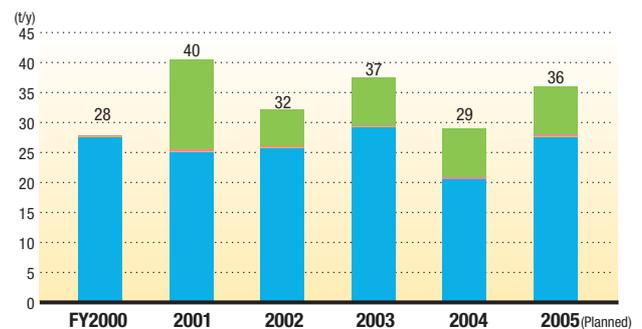
### Total Nitrogen Emissions



### COD Emissions



### Total Phosphorus Emissions



■ Group companies ■ R&D ■ Energy & Environment Division ■ Machinery & Metal products ■ Cement & Construction Materials ■ Chemicals

### Message from an Employee



Ube Chemical Factory, Environment and Safety Group, Environment Team Leader  
**Hideo Ooka**

### Compliance with Emission Regulations

The Ube Chemical Factory has build wastewater monitoring systems. These are now in operation, allowing us to obtain data where we need it, when we need it. Because those directly involved in operations see the same data as managers, they can help to detect abnormali-

ties early and check that we are complying with the regulatory standards.

Effective monitoring requires a proper understanding of environment-related laws and regulations. We encourage employees to obtain external qualifications, and we also conduct regular environmental education programs to raise environmental awareness.

### GLOSSARY

\*1 **The 5th Provision of the Effluent Discharge Regulation:** Based on the Water Pollution Control Law to further lower pollutant load levels in large enclosed sea areas such as Tokyo Bay, Ise Bay and the Seto Inland Sea, beginning in fiscal 2000 the regulation identified COD, nitrogen and phosphorous as designated items and set reduction targets for each sea area, with fiscal 2004 as the target date for achievement.

\*2 **COD (Chemical Oxygen Demand):** This is an indicator of water pollution by organic substances and is the amount of oxygen consumed in the chemical oxidation of organic matter.

\*3 **Total nitrogen, total phosphorous:** These are water pollution indicators related to the maintenance of the biologic conditions in rivers, lakes and seas.

### Controlling Noxious Air Pollutants

In consideration of their usage volumes and potential harm, the chemical industry designated 12 harmful air pollutants as subject to voluntary management among a number of harmful air pollutants, and has promoted reduction of their emissions. From 1997, the industry worked on the 1st Voluntary Management Plan (fiscal 1997–1999), which used fiscal 1995 as the base year, following this up in 2001 with the 2nd Voluntary Management Plan (fiscal 2001–2003), which used fiscal 1999 as the base year, in an effort to reduce emissions still further.

Under the 1st Voluntary Management Plan, UBE succeeded in reducing emissions by 59% (compared to 1995), and under the 2nd Voluntary Management Plan cut emissions by 83% (compared to 1999). The combined reduction ratio of emissions for the 1st and 2nd Voluntary Management Plans was 93%.

In addition to its continuing efforts to reduce emissions of the aforementioned 12 substances, the UBE Group is also working to

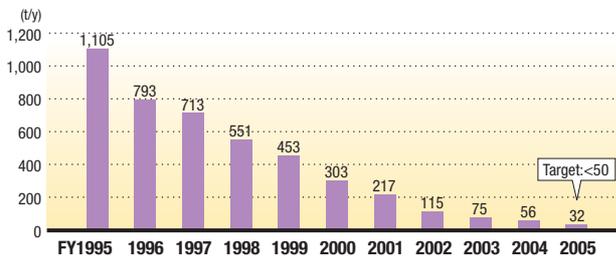
curb emissions of volatile organic compounds (VOCs), which are the source of suspended particulates and photochemical oxidants. It has already adopted a plan to reduce VOCs emissions by 30% from the fiscal 2000 level by fiscal 2010. UBE uses 6 of the 12 substances subject to voluntary management, and is working to further reduce emissions of these. The 6 substances are: benzene, 1,3-butadiene and acrylonitrile, which are raw materials for synthesis, and 1,2-dichloroethane, chloroform and dichloromethane, which are solvents. Benzene is also used as a solvent. Benzene and 1,3-butadiene are particularly harmful, and UBE is doing all it can to make deep cuts in emissions of these. By 2004, emission volumes of benzene and 1,3-butadiene were reduced by 96% and 88% respectively from fiscal 1995.



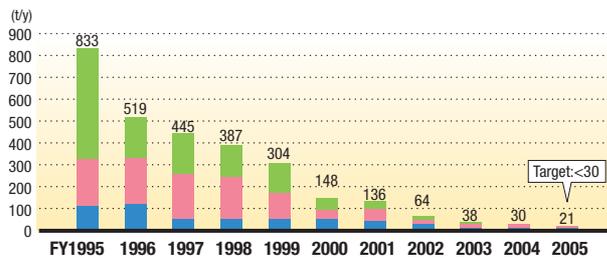
A separation facility for 1,3-butadiene combustion

### Reduction of Airborne Chemical Emissions

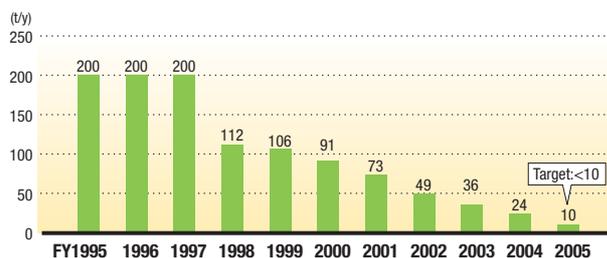
#### Total emissions of six substances



#### Benzene



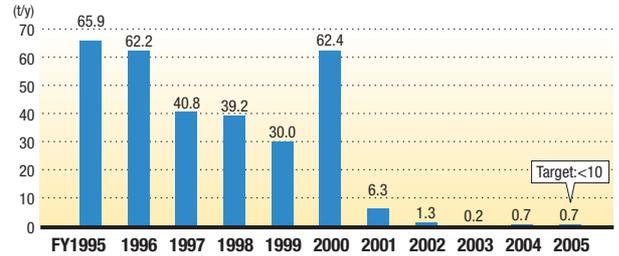
#### 1,3-Butadiene



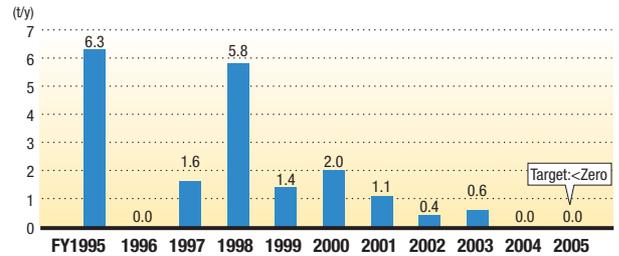
■ Chiba petrochemical Factory ■ Sakai Factory ■ Ube Chemical Factory

(The other 6 substances subject to voluntary controls are: acetaldehyde, ethylene oxide, vinyl chloride monomer, tetrachloroethylene, trichloroethylene and formaldehyde.)

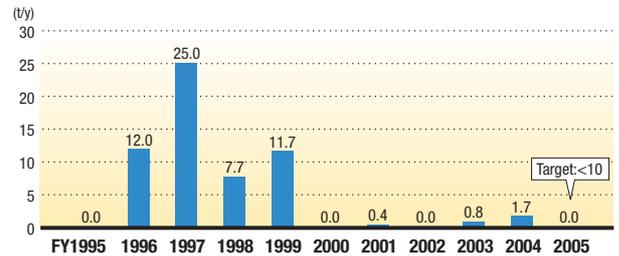
#### 1,2-Dichloroethane



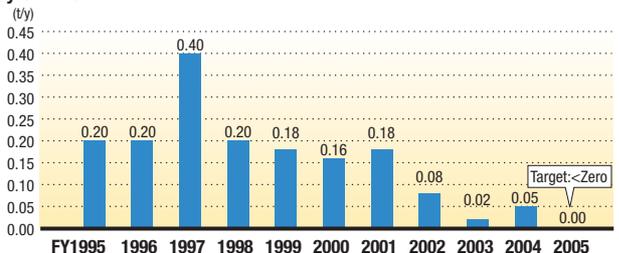
#### Chloroform



#### Dichloromethane



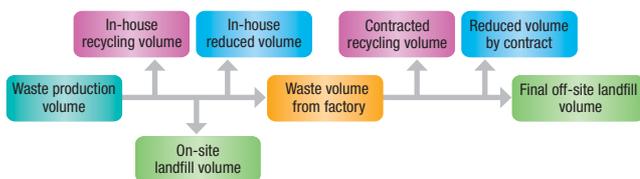
#### Acrylonitrile



## Industrial Waste Reduction

The entire UBE Group is working to reduce industrial waste. The UBE's cement factories take in large volumes of waste from inside and outside of UBE for recycling as raw materials and fuel. In addition to this contribution to effective utilization and recycling, the cement factories are themselves continuing zero emission status.

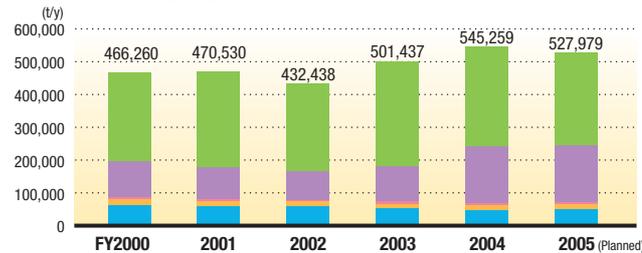
### Overall Flow of Industrial Waste



## Industrial Waste Generation Volume

Industrial waste is generated by many sources. Chemical-related factories and facilities produce sludge, waste oil and waste plastic; on-site power generating and ammonia plants produce coal ash; machinery factories produce inorganic waste, etc. In spite of reducing waste generation, it results in a 9% increase due to the absorption of the IPP business by UBE.

### Waste Generation Volume

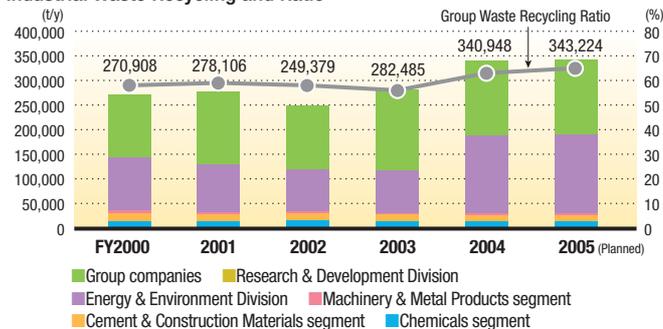


## Recycled Industrial Waste Volume

Most of the waste generated by the UBE Group is recycled within the Group, while some waste is recycled on a cooperative basis with companies outside the Group. In fiscal 2004, recycling volume increased by 20% over the previous fiscal year, and the overall recycling ratio improved by 7%.

The line graph below shows the recycling ratio. In fiscal 2004, the UBE Group's and UBE's recycling ratios were 63% and 78%, respectively.

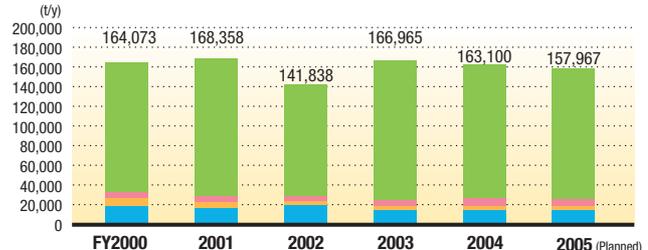
### Industrial Waste Recycling and Ratio



## Industrial Waste Emissions from Factories

There was an increase in UBE's industrial waste emissions used for off-site recycling, such as production of refractory materials. However, the UBE Group's output decreased by 2%.

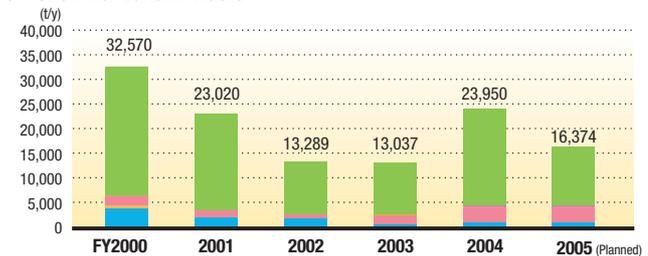
### Industrial Waste Emissions from Factories



## Off-site Final Landfill Volume

Final off-site landfill volume increased by 84% over the fiscal 2003 level because of the consolidated disposal of rejected products that had been stored in a factory of UBE Group.

### Off-site Final Landfill Waste



## Industrial Waste Management

In compliance with the waste treatment and clean-up laws, our industrial wastes are stringently controlled to ensure they are treated and disposed of appropriately. When contracting waste treatment or disposal to outside companies, we use a waste manifest system to control transfer volumes and destinations, and the wastes are monitored until final disposal.

### Message from an Employee



Environment and Safety Department  
Yukihiro Nishida

### Managing Final Disposal Sites for Industrial Waste

Currently, UBE has 3 disposal sites. The Nishioki and Fujimagari sites are used for controlled waste, and the Nagasawa site for stable waste. Final disposal sites are subject to stringent regulation under the Waste Management and Public Cleansing Law, which has been strengthened in response to the growing seriousness of problems caused by illegal waste disposal in recent years. This has necessitated increasingly stringent controls on the acceptance of industrial waste at disposal sites.

Our aim is to make disposal sites as convenient as possible for users without any compromise with regard to compliance with laws and regulations.

**Industrial Waste Recycling in Cement Factories**

**Cement Factories are the ultimate resource recycling facilities.**

Wastes can be used as a part of raw materials of cement (as an alternative to raw materials; material recycling) and as a fuel (as a thermal recycling) in cement making. A wide variety of wastes can be used in this way.

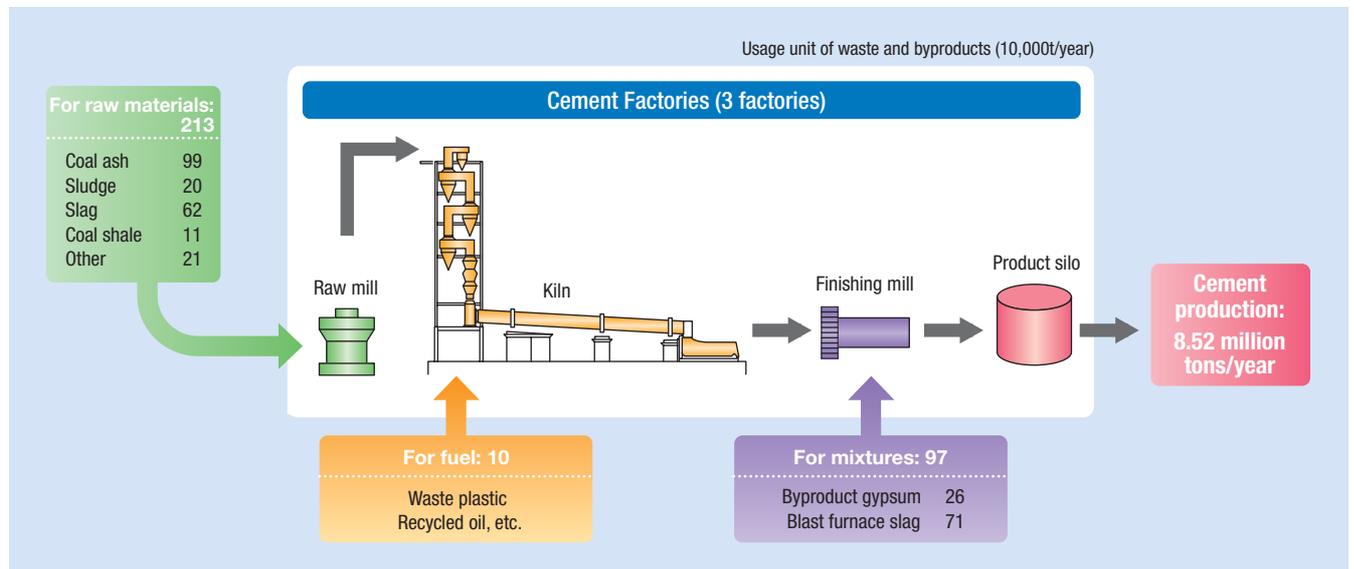
Ash produced by incineration can also be used as an alternative to clay, a component of cement, eliminating the need for final disposal sites for incineration ash. Another advantage is that the high calcining temperature of the cement kilns (1,450°C) burns and destroys substances that cannot be eliminated by ordinary incinerators. The kilns also offer a large waste processing capacity.

UBE's three cement factories actively accept and use various waste materials such as slag, coal ash, refuse incineration ash, sludge, waste fluids, and waste plastics from UBE and companies both inside and outside the Group.

In fiscal 2004, our cement factories made effective use of around 3.2 million tons of wastes and byproducts. Of this, about 3.1 million tons was sourced from outside UBE Group. This is one way UBE contributes to the formation of a recycling-conscious society.

The cement factories are now able to accept waste containing high levels of chlorine, thanks to the technology described in the "Topic" section on Page 2. This capability will further expand the scope of their recycling activities.

**Waste and Byproduct Utilization in Cement Factories**



**Types of Waste Products Utilized**

Our three cement factories recycle large volumes of the following highly diverse wastes and byproducts:

Industry	Types of Industrial Waste
Local government	Sewage sludge, public refuse incineration ash, waterworks sludge, RDF <sup>*1</sup>
Steel, non-ferrous metals	Slag, cinders, gypsum
Electric power	Coal ash, gypsum
Chemicals, paper pulp	Waste plastics, hydraulic cake, gypsum, activated sludge, paper sludge
Petroleum and refining	Waste sludge, waste fluids, waste oil
Construction, building materials	Sludge residues, waste board, construction spoil, used tatami mats, timber waste
Food and beverages	Shochu lees, organic sludge
Motor vehicles	Waste silica sand, paint residues, waste grinding sand, discharged tires, waste plastics
Others	Used pinball machines, bone meal

**Message from an Employee**



General Manager, Material Recycle Division, Cements & Construction Materials Company  
**Katsuyuki Oi**

**Recycling Wastes as Cement Manufacturing Resources**

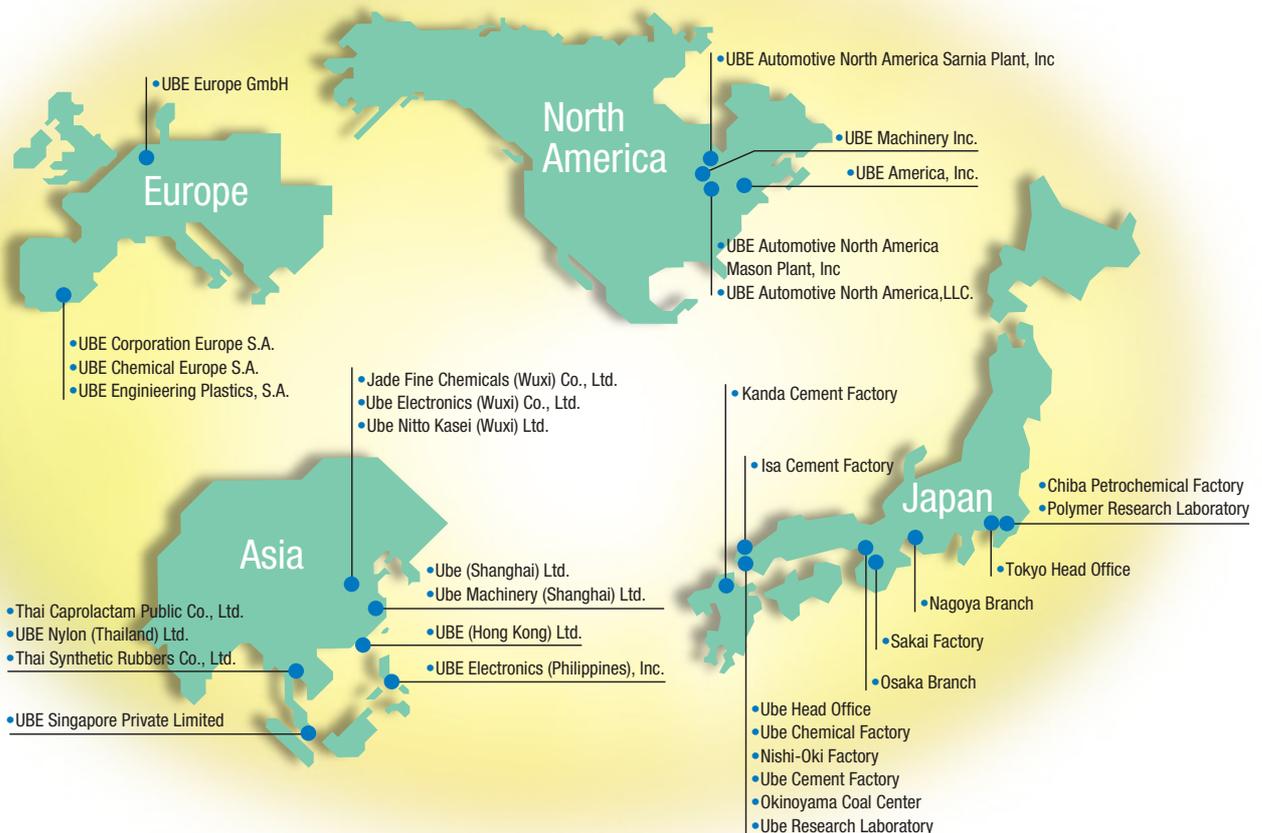
A cement factory is the ultimate recycling facility with processes that are ideal for the utilization of wastes as fuel and raw materials. At a time when environmental restrictions on dioxins and other substances are being tightened, the cement industry has become a major conduit for the totally safe recycling of waste products.

We aim to make a continuing contribution to the evolution of the sustainable society by increasing the use of wastes and reducing the cost of cement production, without any compromise on the quality of cement.

\*1 Refuse-derived fuel (RDF): This is solid fuel made by compressing waste plastic, scrap wood and general garbage.

# Measures Applied toward Group Companies

## Domestic and Overseas Bases



## Working with Group Companies

All the companies of the UBE Group are working as a team with UBE to promote Responsible Care activities. Of course, major companies of the Group participate in the Group Environment & Safety Committee, Segment Environment & Safety Committees, the Global Environment Preservation Promotion Committee and the Product Safety (PL) Committee. At the same time, the environment & safety audits and environment & safety inspections are implemented by Group member companies.

The Environment & Safety Department, serving as secretariat, oversees all of the environment & safety audits, checking on activities and recording results of PDCA cycles relating to environmental preservation, safety and hygiene and process safety and disaster prevention. Environment safety inspections are headed up by Group executives (the president and directors) who inspect the overall environment & safety activities of all facilities, mainly through on-site observation. Companies in groups centering on in-house companies undergo similar voluntary inspections.

## Environment & Safety Audits and Inspections at a Glance (Fiscal 2004)

	Environment & Safety Audits	Environment & Safety Inspections
UBE Offices	<ul style="list-style-type: none"> <li>• Ube Chemical Factory</li> <li>• Ube Cement Factory</li> <li>• Nishioki Factory</li> <li>• Kanda Cement Factory</li> <li>• Sakai Factory</li> <li>• Isa Cement Factory and Plant Maintenance Department</li> <li>• Chiba Petrochemical Factory</li> <li>• Power BU (Power Generating Station)</li> <li>• Technology Center, Chemical Production Division</li> </ul>	<ul style="list-style-type: none"> <li>• Sakai Factory</li> <li>• Ube Chemical Factory</li> <li>• Nishioki Factory</li> <li>• Chiba Petrochemical Factory</li> <li>• Isa Cement Factory</li> <li>• Ube Cement Factory</li> <li>• Kanda Cement Factory</li> <li>• Power BU (Power Generating Station)</li> <li>• Okinoyama Coal Center</li> <li>• UBE Research Laboratory</li> </ul>
Group companies	<ul style="list-style-type: none"> <li>• Meiwa Kasei Industries, Ltd.</li> <li>• Ube Ammonia Industry, Ltd.</li> <li>• Ube-Nitto Kasei Co., Ltd. (Gifu Factory)</li> <li>• Ube Machinery Inc.</li> <li>• U-Mold Co., Ltd. (now Ube Aluminum Wheel Factory)</li> <li>• Ube Shin kasado Dockyard Co., Ltd.</li> <li>• Ube Corporation Europe</li> <li>• Ube Engineering Plastics</li> <li>• Thai Caprolactam P. C. L.</li> <li>• Ube Nylon (Thailand)</li> <li>• Thai Synthetic Rubbers</li> <li>• UANA Mason Plant</li> <li>• UANA Sarina Plant</li> </ul>	<ul style="list-style-type: none"> <li>• Ube Ammonia Industry, Ltd.</li> <li>• Ube Materials Industries, Ltd. (Chiba Factory)</li> <li>• Ube Materials Industries, Ltd. (Mine Factory)</li> <li>• Ube-Nitto Kasei Co., Ltd. (Gifu Factory)</li> <li>• Ube Machinery Inc.</li> <li>• U-Mold Co., Ltd. (now Ube Aluminum Wheel Factory)</li> <li>• Ube Shipping &amp; Logistics, Ltd.</li> <li>• Ube-Mitsubishi Cement Research Institute Corporation, Ube Center (voluntary)</li> </ul>

### Ube Chemical Factory



- Location: 1978-10 Ohaza Kogushi, Ube City, Yamaguchi
- Start of operations: 1933
- Site area: 624,000m<sup>2</sup>
- Main products: Caprolactam, Nylon resin, Active pharmaceutical ingredients and Intermediates, Fine chemicals, High-purity chemicals, Industrial pharmaceuticals and Fertilizers, Polyimide resins, Separation membranes, New materials

Operations at the Ube Chemical Factory are guided by a factory policy that emphasizes harmonious coexistence with local communities and the maintenance of public confidence. This stance reflects the factory's location close to residential areas, as well as UBE's status as a leading company in the region. To achieve these goals, UBE needs to ensure safety on four levels: protecting labor, the environment, facilities, and product quality. It has established and is steadily implementing an action program to achieve sustained improvement based on ISO systems. Facility installation or expansion is preceded by thorough internal environmental and safety assessments and prior consultations with the Ube City government and its environmental council. Through these processes, UBE strives to maintain the trust of local residents and provide them with continuing peace of mind. In addition to activities based on targets for each of the four safety categories, UBE has also launched initiatives focusing on community perspectives, such as measures to prevent odors.

### Chiba Petrochemical Factory



- Location: 8-1 Goi Minami Kaigan, Ichihara City, Chiba
- Start of operations: 1964
- Site area: 562,000m<sup>2</sup>
- Main products: Polyethylene, Synthetic rubber

The Chiba Petrochemical Factory is located in Ichihara City, Chiba Prefecture. Ichihara is part of the Keiyo coastal industrial belt, where industrial activities exist in harmony with a rich natural environment. Its operations are guided by the fundamental principle that "safety must always be the first priority." The plant also strives to maintain the trust of the community by being kind to people and the environment, in keeping with UBE's recognition that global environmental preservation is the most important issue for the 21st century.

In addition to improvements to facilities and systems, individual employees are encouraged to be aware of their own involvement in compliance with legal requirements and efforts to achieve environment, safety and health goals. Everyday, employees in every workplace participate in group readings of the "365-Day Collection," which lists key points relating to safety, the environment and health. The aim of this initiative to raise awareness of environmental preservation and occupational safety and health.

### Sakai Factory



- Location: 3-1 Chikko Shinmachi, Sakai City, Osaka
- Start of operations: 1967
- Site area: 463,000m<sup>2</sup>
- Main products: Caprolactam, Ammonia, Liquefied carbon dioxide, Electrolytic fluids

In 2000, the Sakai Factory began to implement a safety measures designed to reduce risks and raise awareness of safety. In February 2005, Sakai Factory obtained occupational safety and health management system OHSAS18001 certification.

In regard to process safety and disaster prevention, we the Sakai Factory, have earned qualifications that allow us to carry out high-pressure gas safety inspections and completion inspections, and operating inspections of boilers and Class 1 pressure vessels. A new safety management system has been established to meet high-pressure gas certification requirements under the amended High-Pressure Gas Safety Law.

The Sakai Factory has already obtained certification for its systems under ISO 9001 (quality) and ISO 14001 (environmental management). All personnel at the Sakai Factory are united in efforts to ensure the safety and reliable factory utilizing these management systems.

### Environmental Data (t/year)

Fiscal year	Ube Chemical Factory		Chiba Petrochemical Factory		Sakai Factory	
	2003	2004	2003	2004	2003	2004
CO <sub>2</sub> emissions (thousand t)	259	216	52	53	170	156
SO <sub>x</sub> emissions	1,912	1,851	0.5	17.0	2.9	3.6
NO <sub>x</sub> emissions	4,372	3,368	3.4	11.6	322	308
Dust emissions	108	139	1.6	2.5	57	48
COD emissions	585	561	20.2	19.1	143	167
Total nitrogen emissions	726	617	8.6	6.0	323	213
Total phosphorus emissions	23	14	0.4	0.3	6.1	5.7
Waste final disposal volume	208	277	27	121	295	412

**Ube Cement Factory**



- Location: 1978-2 Ohaza Kogushi, Ube City, Yamaguchi
- Start of operations: September 1923
- Site area: 420,000m<sup>2</sup>
- Employees: 219 (including general employees)

**Isa Cement Factory**



- Location: 4768 Isa, Isa-cho, Mine City, Yamaguchi
- Start of operations: July 1955
- Site area: 381,000m<sup>2</sup>
- Employees: 132 (including general employees)

**Environment Safety Initiatives**

The Ube, Isa and Kanda Cement Factories all formulate and implement factory environment and safety management plans in accordance with the basic Environment and Safety Principles of the UBE Group and the basic policy of the Cement & Construction Materials Company.

The high-temperature calcination technology used in cement kilns allows a variety of wastes to be used as raw materials or alternative fuels. Waste from the factories is also totally recycled, and there is no waste disposal off-site.

The intake and use of waste is controlled under ISO 9001 and ISO 14001 management systems. When a new type of waste is received, it is thoroughly assessed by the Prior Safety Assessment Committee. Where necessary, the understanding of local communities is sought through prior consultation with local municipalities, community briefings and environment council meetings.

The priorities from a process safety perspective are facility reliability and emergency response capabilities. To prevent problems caused by facility aging, key facilities undergo regular diagnostic checks in addition to inspections mandated in laws and regulations, to ensure that they are both functional and safe. Emergency response capabilities are maintained by means of regular drills conducted in each of the factories. The drills are based on a wide range of factory accident scenarios and involve staff at all levels. Safety-related measures include the introduction of a risk assessment system in 2000, and an occupational safety and health management system (OSHMS) in 2003. UBE's proactive stance on safety was reflected in the OSHMS certification of the Ube Cement Factory by the Japan Industrial Safety and Health Association in March 2005. In fiscal 2005, UBE aims to obtain OSHMS certification for the Isa and Kanda Cement Factories. It will also continue to focus on the effective implementation of its quality, environmental and occupational safety and health management systems while also further strengthening its PDCA cycle activities.

**Kanda Cement Factory**



- Location: 7 Nagahama-cho, Kanda-machi, Miyako-gun, Fukuoka
- Start of operations: December 1964
- Site area: 205,000m<sup>2</sup>
- Employees: 57

**Environmental Data (3-Factory Totals)** (Unit: t/year)

Fiscal Year	2000	2001	2002	2003	2004
CO <sub>2</sub> emissions (thousand t)	872	856	811	812	780
SO <sub>x</sub> emissions	400	386	437	433	412
NO <sub>x</sub> emissions	14,063	14,333	13,522	13,673	13,177
Dust emissions	213	212	239	225	227



**Woody Biomass Utilization at the Isa Cement Factory**

Waste timber and other woody biomass material is used as a partial substitute for coal in the fluidized bed boiler for the 57MW power generator at the Isa Cement Factory. The system has been in operation since 2004. The boiler uses 45,000 tons of woody biomass annually, reducing CO<sub>2</sub> emissions by 59,000 tons annually.

**Ube Machinery Corporation, Ltd.**



- Location: 1980 Ohaza Kogushi Aza Okinoyama, Ube City, Yamaguchi
- Start of operations: September 1942
- Site area: 270,000m<sup>2</sup>
- Main products: Injection molding machines, Die-casting machines, Extrusion presses, Transportation equipment, Crushers, Bridge members, Steel structures

**Environmental and Safety Initiatives**

Ube Machinery is responsible for the machinery manufacturing and sales side of the UBE Group's Machinery & metal Products segment. It aims to be a company of sensitivity whose factory and products evoke positive emotions in customers. Based on the basic Environment and Safety Principles of the UBE Group, Ube Machinery implements a wide range of environmental preservation, process safety and disaster prevention, and safety and health initiatives. In 1999, it obtained ISO 14001 certification, and in fiscal 2005, it introduced an occupational safety and health management system as a key tool for activities in this area.

Environmental preservation efforts include the optimized operation of facilities and equipment to reduce energy consumption and CO<sub>2</sub> emissions. Waste final disposal volume has also been reduced through the use of a waste sorting system to support increased recycling.

Environmental preservation is also a basic focus of product design and development. This commitment encompasses not only the development of energy-efficient machinery, but also the minimization of environmental loads at all stages from raw materials to disposal, and even the products manufactured on equipment manufactured by Ube Machinery.

As part of its process safety and disaster prevention activities, Ube Machinery has strengthened preventive maintenance inspections of its facilities and equipment. It also implements regular emergency response drills based on various scenarios to check preparedness and raise awareness.

In the area of safety and health, Ube Machinery uses video records of workplace operations to predict risk factors and assess high-risk operations. It also conducts realistic injury accident drills to raise awareness of safety and the importance of preventive measures.

**Responsible Care Measures**

The Ube Aluminum Wheel Factory operates under a policy calling for the efficient, safe manufacture of reliable products, and for the maintenance of good environmental conditions.

The aluminum used to produce the wheels is in tune with the contemporary need for materials that can be reduced, reused and recycled (the "3 Rs"), since it is ideal for both reuse and recycling. This is an important advantage for the Ube Aluminum Factory as it works to strengthen its environmental performance, particularly in the areas of energy conservation and waste reduction. The rules that guide its activities consist of ISO/TS16949, which is the quality management standard for the motor vehicle industry, as well as the ISO 14001 environmental management standard, and the OHSAS18001 occupational safety and health management standard. In February 2003, the factory received an energy conservation award from the Chugoku Bureau of Economy, Trade and Industry in recognition of its environmental efforts.

Safety and health activities are based mainly on the OHSAS18001 standard. The goal of the factory's safety and health policy aim is to ensure that all employees can work in safety and with peace of mind. This is achieved through safety maintenance and improvement activities based on the identification of potential hazards and prompt remedial action.

**Ube Aluminum Wheel Factory (Former U-Mold Co., Ltd.)**



- Location: 2575-62 Ohaza Fujimagari, Ube City, Yamaguchi
- Start of operations: September 1987
- Site area: 110,000m<sup>2</sup>
- Main products: Aluminum wheels

**Environmental Data** (Unit: t/year)

Fiscal Year	Ube Machinery		Ube Aluminum Wheel Factory	
	2003	2004	2003	2004
CO <sub>2</sub> emissions (thousand t)	4.7	4.8	22.5	20.8
SO <sub>x</sub> emissions	0.3	0.2	2.1	1.4
NO <sub>x</sub> emissions	—	—	9.2	11.8
Dust emissions	—	—	1.6	0.9
COD emissions	1.3	1.1	0.2	0.2
Total nitrogen emissions	1.2	1.9	0.1	0.3
Total phosphorus emissions	0.2	0.2	0.01	0.04
Waste final disposal volume	1,747	924	1,780	2,433

SPAIN

**Ube Corporation Europe S.A./Ube Chemical Europe, S.A.**



- Location: Castellon, Spain
- Start of operations: July 1967
- Site area: 280,000m<sup>2</sup> (including UEP<sup>\*1</sup>)
- Employees: 255
- Main products: Caprolactam, 1,6-hexane-diol

**Ube Engineering Plastics, S.A.**



- Location: Castellon, Spain (adjoining UCE<sup>\*2</sup>)
- Start of operations: June 2004
- Employees: 33
- Main products: Nylon 6 resin.

\*1 UEP: Ube Engineering Plastics, S.A.  
\*2 UCE: Ube Corporation Europe

In the EU, trading in CO<sub>2</sub> emission rights began in January 2005. This system applies to factory of Ube Chemical Europe, which has been allocated an emission quota and is working to implement the necessary measures.

**Social Contribution Activities by the UBE Group in Spain**

In July 2003, the three UBE Group companies in Spain donated a bronze statue to commemorate the 100th anniversary of the opening of the Port of Castellon. Social contribution activities include the following.

- (1) Support for charities, including the Red Cross and UNICEF
- (2) Support for cultural organizations, including local universities and the local symphony orchestra
- (3) Community activities, including support for the Castellon Magdalene Fiesta, and the invitation of some 20 local students each year to gain work experience through participation in actual factory operations

THAILAND

**Thai Caprolactam Public Co., Ltd.**



- Location: Rayong, Thailand
- Start of operations: 1997
- Site area: 192,000m<sup>2</sup>
- Employees: 375
- Main product: Caprolactam

**Ube Nylon (Thailand), Ltd.**



- Location: Rayong, Thailand (adjoining to TCL<sup>\*3</sup>)
- Start of operations: 1997
- Site area: 23,000m<sup>2</sup>
- Employees: 41
- Main product: Nylon 6 resin.

**Thai Synthetic Rubbers, Co., Ltd.**



- Location: Rayong, Thailand (adjoining TCL<sup>\*3</sup>)
- Start of operations: 1997
- Site area: 40,000m<sup>2</sup>
- Main product: Butadiene rubber

\*3 TCL: Thai Caprolactam Public Co., Ltd.

The three UBE Group factories in Thailand are totally committed to environmental and safety efforts and have made accident-free operation a goal for every worker. These activities are led by local employees under the guidance of UBE headquarters. All three factories have obtained ISO 9002 and ISO 14001 certification, and two are working actively to gain TIS18001 certification. The three factories are also developing manuals covering standards and other information.

**Social Contribution Activities by the Three UBE Group Companies in Thailand**

Good communication with local residents is essential for the three UBE Group companies in Thailand. As part of their contribution to local communities, they have provided medical services and supported various campaigns and voluntary programs in the areas around their factories. All three companies plan to continue and expand these activities in the future.



CANADA

**Ube Automotive North America Sarnia Plant Inc.**



- Location: Ontario, Canada
- Start of operations: 2002
- Site area: 283,000m<sup>2</sup>
- Main product: Aluminum car wheels

The Sarnia Plant manufactures and supplies aluminum wheels for cars manufactured by the Big 3 and other North American motor vehicle manufacturers. Based in Ontario, Canada, which has strict safety and environmental standards, the company began to implement Responsible Care activities as soon as it commenced operations in 2002. In 2003, it obtained ISO 14001 certification. These activities are based on disclosure and dialog in accordance with an agreement requiring information to be shared with all employees.

Environmental Data (Unit: t/year)

Fiscal Year	Spain		Thailand		Canada	
	2003	2004	2003	2004	2003	2004
CO <sub>2</sub> emissions (thousand t)	26	29	76	83	10	10
SO <sub>x</sub> emissions	13	89	72	89	0.1	0.1
NO <sub>x</sub> emissions	950	879	152	149	16	20
Dust emissions	40	26	141	131	1.2	1.5
COD emissions	872	240	69	66	24	28
Total nitrogen emissions	591	366	109	30	1.5	1.7
Total phosphorus emissions	0.7	0.7	0	0	0.1	0.1
Waste final disposal volume	1,948	3,992	3,863	716	1,014	625

# Third-party Opinions

## Third-party Verification and Comments

In August 2005, this CSR Report was submitted for third-party verification by the Responsible Care Verification Center. The scope of the verification reflected the fact that this was the first

time that UBE had sought verification for a CSR report. The content of the verification report and the comments on the verification questionnaire will be reflected in future reports.



CSR Report 2005  
Third-Party Verification—Written Opinion  
(Translation from Japanese)

August 18, 2005

Mr. Hiroaki Tamura  
President and  
Group Chief Executive Officer  
Ube Industries, Ltd.

Akio Yamamoto  
Chairman Verification Advisory Committee

Yasuo Tanaka  
Chief Director Responsible Care Verification Center

**Objectives of Verification**

This Responsible Care Report Verification refers to “CSR Report 2005,” which was prepared by Ube Industries, Ltd. It expresses our opinion, as chemical industry specialists, concerning the following matters.

1. The reasonableness of the methods used to calculate and aggregate performance indicators (numerical values), and the accuracy of numerical values.
2. Consistency between information in the report and evidential documents and materials.
3. Evaluation of Responsible Care activities.
4. Characteristics of the report.

**Verification Procedures**

- At the corporate level: The consistency of the report with the evidence was checked, and the methods used to aggregate and compile performance indicators reported from each site (office, plant) were confirmed by interviewing those responsible for operations and the compilation of data, and by seeking documents and requesting explanations of those documents.
- At the site level: The consistency of the report with the evidence was checked, and the methods used to aggregate and compile performance indicators reported to the head office by each site (office, plant) were confirmed by interviewing those responsible for operations and the compilation of data, and by seeking documents and requesting explanations of those documents. The site selected was Chiba Petrochemical Factory.
- Performance indicators and information in the report were verified by sampling.

**Opinion**

- 1) The reasonableness of methods used to calculate and aggregate performance indicators (numerical data), and the accuracy of numerical values.
  - Performance indicators were calculated and aggregated reasonably by the head office and Chiba Petrochemical Factory.
  - The performance statistics were accurate across the scope of the survey.
- 2) Consistency between information in the report and evidential documents and materials.
  - It was confirmed that information shown in the report was consistent with the evidential documents and materials that were examined. There were issues with the appropriateness of expressions or ease of understanding at the draft stage, but these have been corrected in the present report, and there are now no specific aspects that require further documentation.
- 3) Evaluation of Responsible Care Activities
  - It is significant that UBE has increased its efforts to foster communication with the public, including participation in community dialogue meetings (in the Ube district) organized jointly with the Japan Responsible Care Council.
  - UBE uses policy management as the basis for its response to targets and key issues. However, it needs to quantify its targets more clearly to allow distinct and objective evaluation of target achievement under its plans, and to ensure that the PDCA cycle is operating properly.
  - When we visited the Chiba Petrochemical Factory, we learned that there had been a major reduction in emissions of benzene and 1,3-butadiene, which are toxic atmospheric pollutants. In fact, emissions had been lowered by over 90% compared with fiscal 1995 levels. Moreover, the factory has been disaster-free since 1989. By the end of March 2005 the plant had logged 10 million disaster-free hours, and it continues to extend this record. This is another example of the excellent results achieved through responsible care activities.
- 4) Characteristics of the Report
  - Until last year, the reports focused mainly on responsible care activities as self-management initiatives relating to the environment and safety. It is significant that the scope of this year’s edition has been expanded to provide increased disclosure as a CSR report that also includes economic and social information.

## Comments from a Knowledgeable Individual



Professor of Environmental Engineering, Graduate School of Engineering, Yamaguchi University  
**Masao Ukita**

This CSR Report examines corporate activities from the economic, social and environmental perspectives and brings all three perspectives together to provide an excellent overview of those activities. Sound management is the first requirement for a company, and it is very pleasing to see signs of healthy trends in the business performance of this company.

From a social perspective, the main areas of interest for an outside observer are community contribution and corporate ethics. Unfortunately, these aspects are intermingled with information concerning internal human resource management, and the picture is not entirely clear.

From an environmental viewpoint, it is encouraging to learn how

much effort is going into the creation of environment-friendly products. Another feature of this Company is the fact that its environmental accounts are positive, reflecting its involvement in the cement industry. The environmental load data in the site reports are easy to understand. When present emission levels for chemical substances are compared with 1995 levels, it is clear that there have been dramatic reductions. This is a reflection of the huge efforts made by businesses in the intervening years, though I was also shocked to see the quantities of these substances that were released in the past. I hope that these efforts will continue.

In 1997, Ube City received a UNEP Global 500 award. It is one of only nine municipalities in the world to achieve this distinction. The award was in recognition of the achievements of industry, government, academia and the public in their efforts to eliminate pollution over a period spanning half-a-century. As a local company, I am sure that UBE played a major role in that success. Social conditions have changed considerably, but I look forward to the day when the "Ube System" will once again play a leading role in our efforts to develop environmentally sustainable cities.

## Editorial Policy

As one facet of its Responsible Care activities, and in conformance with guidelines set by the Ministry of the Environment, UBE has produced a yearly RC Report disclosing information on its activities. This report is used as a means of communication with stakeholders, as well as a safety and health education tool for employees. This report is unlike past environmental reports in that it incorporates issues relating to corporate social responsibility (CSR). In the past few years, sustainability report guidelines (Global Reporting Initiative: GRI) for reporting have suggested that the 3 issues of environment, economy and society be included.

This year's report pays comparatively greater attention to economic and social elements, and also offers more in-depth information on specific site activities and overseas business developments. Moreover, the report for 2005 includes third-party verification, similar to that used for environmental management under ISO 14001, as well as a third-party opinion. To reflect these changes, the name of the report has been changed from the "Responsible Care Report" to the "CSR Report."



The CSR Editorial Team

### Scope of this Report

#### Reporting period:

April 1, 2004–March 31, 2005 (including sections on 2005 activities and future planning)

#### Subject company:

UBE Industries, Ltd. and 11 major group companies Four chemical factories (Chiba, Sakai, Ube, Nishioki) Three cement factories (Ube, Isa, Kanda) Ube Aluminum Wheel Factory (formerly U-Mold Co., Ltd.) Ube Film, Ltd., Meiwa Kasei Industries, Ltd., Ube Ammonia Industry, Ltd., Ube Agri-Materials, Ltd., Ems-Ube, Ltd., Kemira-Ube, Ltd., Ube-Nitto Kasei Co., Ltd., Ube Material Industries, Ltd., Ube Board Co., Ltd., Ube Machinery Corporation, Ltd., Ube Steel Co., Ltd.

**Subject area:** Activities in Japan

#### Reported data:

- ① Data for UBE and its group companies: In principle, results for the past five fiscal years (2000–2004) and forecast performance for fiscal 2005
- ② Because U-Mold Co., Ltd. was absorbed by UBE in January 2005, its data for fiscal 2004 has been included with the non-consolidated data for UBE.
- ③ Actual data for Ube-Nitto Kasei Co., Ltd. have been added, starting from fiscal 2004.
- ④ It was decided to exclude the Nishioki Factory, Ube Agri-Materials, Ltd., Ems-Ube, Ltd., Kemira-Ube, Ltd. from the energy consumption, CO<sub>2</sub> emissions and environmental preservation cost data in the environmental accounts from fiscal 2004 onwards. This decision was based on a review of the factories and group companies covered in the report, based on UBE's equity method ratio in Group companies.
- ⑤ Apart from environmental performance indicators, all data and statements refer to all UBE Group companies.

#### Reference on guidelines:

This report was created according to guidelines set forth in "Environmental Reporting Guidelines 2003 Edition" (Ministry of the Environment), with performance data determined according to guidelines set forth in the business operators' "Performance Guidelines 2002 Edition," and accounting standards conforming to "Environment Accounting Guidelines 2005 Edition."

Wings of  
technology  
Spirit of  
innovation  
**UBE**

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