Tokuyama Corp.
Responsible Care Management Dept.,
Corporate Social Responsibility Division
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CSR Report 2008
In Harmony with People, Society and the Environment

Staying with you all the time

This report is printed on FSC-accredited paper with pure plant oil ink, which contains no volatile organic compounds and in a dry printing process that uses no water, thus precluding release of any harmful effluents.
We promote business operations under our management policy, “Venture Spirit & Innovation,” to create a company that is in harmony with society.

On February 16, 2008, the Tokuyama Group celebrated the 90th anniversary of its establishment. I hereby express my gratitude to all stakeholders for their committed support. We will promote business operations under our management policy, “Venture Spirit & Innovation,” as we approach the centennial of our establishment.

On the occasion of the 90th anniversary, the Tokuyama Group set out a corporate vision for the next ten years, called the Centennial Vision. It defines the optimum form of the Group as “a manufacturing company that creates a brighter future with the vitality of human resources and creativity of chemistry in harmony with society.” The Centennial Vision is based on the concept that the framework of its Human Resources-based management and Promotion of corporate social responsibility (CSR) activities will be strengthened in a bid to achieve the vision.

On the basis of this principle, this report is designed to ensure that all stakeholders have better insight into the activities and future goals of the Group, which is aiming to be a manufacturing company that is in harmony with society. Until two years ago, the report was entitled Responsible Care Report. Since last year, the report has been prepared under the new title, CSR Report. This reflects our desire to ensure consistency in our activities from the perspective of stakeholders in accordance with the CSR concept.

It is solely in the context of their relationships with stakeholders that companies receive recognition and are required to meet their responsibilities. In the light of this notion, the company engages in activities to improve its level of CSR to review individual processes in the business activities. The Tokuyama Group’s longstanding CSR activities have three major pillars – Responsible Care activities, environmental management and the assurance and enhancement of compliance.

Responsible Care activities are voluntary, worldwide activities performed by the chemical industry to safeguard the environment, to ensure health and safety throughout the lifecycle of chemical products including development, manufacturing, distribution, utilization, final consumption and disposal. We have been engaged in these activities for more than a decade.

Environmental management aims to reorganize all business activities into an environmentally friendly form to increase corporate value and to build a sustainable society. The Tokuyama Group operates two businesses, one engaged in the manufacture of chemicals and the other in cement production. Taking advantage of this uniqueness, we have been putting effort into recycling by-products and waste. In addition, we are constantly working to help create an environmentally friendly country through energy conservation technologies, environmental technologies and the development of environmentally friendly products on the basis of the vitality of human resources and creativity in chemistry.

To improve our activities in ensuring and enhancing compliance, we set up the Sunflower Committee two years ago as a body for encouraging the operation and maintenance of internal control.

Based on these past achievements, we review these activities from the stakeholders’ standpoint in accordance with the concept of CSR to align the directions of these efforts, and further improve and augment the initiatives. The Tokuyama Group wishes to continue to be a corporate group that has the trust and respect of the public. We believe the trust and respect can only be maintained by continuous efforts. As we work toward the company’s centennial, the business environment is drastically changing. Amid these changes, we are committed to carrying “Venture Spirit & Innovation” into execution in relation to every process of our business activities to evolve into a corporation that is in harmony with society. We would be grateful if you could provide us with any comments and suggestions you have in relation to this report.

July 2008
Shigeaki Nakahara
President
Summary of Business

Company Outline

Corporate Name: Tokuyama Corporation
Established: February 16, 1918
Capital: 29,975 million yen (as of March 31, 2008)
Registered address: 1-1, Mikage-cho, Shunan city, Yamaguchi Japan
Head office: Shibuya Kosmo Bldg. 1-3, Shibuya 3-chome Shibuya-ku, Tokyo 150-8383 Japan
Branches and offices: Sendai, Nagoya, Osaka, Takamatsu

Production and Research Sites:
Tokuyama Factory, Kashiwa Factory and Tsukuba Research Laboratory
Number of Consolidated Subsidiaries: 47
Number of Equity Method Companies: 13

Sales Breakdown by Segment (Fiscal 2007)

- Cement, building materials and others: 87.8 (28.6%)
- Specialty products: 101.2 (32.9%)
- Chemicals: 118.3 (38.5%)
Total: 307.4

Business Segments and Major Products (including group companies)

- Chemicals: Caustic soda, soda ash, calcium chloride, sodium silicate, vinyl chloride monomer, polyvinyl chloride resin, propylene oxide, isopropyl alcohol, methyl ether chloride, biaxial-oriented polypropylene films, co-extrusion multi-layer films, cast polypropylene films, microporous films

- Specialty Products: Polycrystalline silicon, precipitated silica, fumed silica, aluminum nitride, dental materials and equipment, pharmaceutical ingredients and intermediates, plastic lens materials for glasses, ion-exchange membranes systems, metal washing solvents, high purity chemicals for the electronics manufacturing, clinical analyzers and systems, gas sensors and gas detectors

Net Sales


Operating Profit


Number of Employees


Tokuyama’s Global Network

Cement, Building Materials and Others

Tokuyama Europe GmbH, Germany
Eurodia Industrie S.A., France

Asia

Ordinary Portland cement, high early-strength Portland cement, Portland blast furnace slag cement, ready-mixed concrete, plastic window sashes, cement-type stabilizer and waste treatment

Tokuyama’s Global Network

Europe

Asia

North America
In Your Everyday Life - Chemistry in harmony with Society

Tokuyama has devoted itself diligently to manufacturing in an effort to serve society and to bring happiness to people since its establishment. Although they may attract little attention, products that are valuable in everyday life help you in your daily life. If you notice our products, you will find that Tokuyama is always beside you.

Tokuyama’s chemicals help to enrich everyone’s lifestyles.

Tokuyama offers security and comfort while paying attention to the environment.

Outside
the home

At home

Tokuyama CSR Report 2008

**In Your Everyday Life**

**Chemistry in harmony with Society**

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Tokuyama’s chemicals help to enrich everyone’s lifestyles.

Tokuyama offers security and comfort while paying attention to the environment.
The Tokuyama Group’s Centennial Vision is to become “a manufacturing company that creates a brighter future with the vitality of human resources and creativity of chemistry in harmony with society.” All members of the Group will strive to ensure that the Group develops into this optimum form.

**Summary of the New Three-Year Management Plan (for fiscal 2008-2010)**

In ten years, on February 16, 2018, Tokuyama will mark the centennial of its establishment.

The basic strategies for the Centennial Vision are to strengthen its strategically growing businesses and international competitiveness through a process of selection and concentration. We are committed to “Human Resources-based management” and the “Promotion of CSR activities.” Their purpose is to support the basic strategies.

The new Three-Year Management Plan is seen as a medium-term management plan that serves as the first step toward achieving the Centennial Vision. In accordance with the basic strategies for the Centennial Vision, the growth strategies described below will be implemented.

**Position of the New Three-Year Plan**

The first step in reform toward the company’s centennial

- **Start of the new Three-Year Plan**
  - Fiscal 2008

- **Next Three-Year Plan**
  - Fiscal 2011

- **Three-Year Plan after next**
  - Fiscal 2014

**Centennial Vision**

**2018**

**Position of the New Three-Year Plan**

- **Start of the new Three-Year Plan**
  - Fiscal 2008

- **Next Three-Year Plan**
  - Fiscal 2011

- **Three-Year Plan after next**
  - Fiscal 2014

**Schematic Representation of the Basic Strategies for the Company’s Centennial**

**Key Concept:** Venture Spirit & Innovation

- **The Optimum Form**
  - A manufacturing company that creates a brighter future with the vitality of human resources and creativity of chemistry in harmony with society.

- **Basic Strategies**
  - Strengthening of International Competitiveness
  - Strengthening of Strategically Growing Businesses

- **Human Resources-based Management**

- **Promotion of CSR Activities**

**Centennial of its establishment**

**Growth Strategies under the New Three-Year Plan**

1. **Selection and Concentration for Attacking**

   The scope of the Tokuyama Group’s businesses encompasses a wide array of products ranging from materials to components. The markets served by the Group have a multi-polar structure. Through the use of two criteria, namely international competitiveness and lifecycle, these businesses are classified into four categories—growing materials business, growing components business, foundation business and independent component business. In each of the four categories, we will continue with a process of selection and concentration to take advantage of the strengths of each business and new business opportunities.

2. **Creation of New, Globally Competitive Businesses**

   To create a structure that ensures constant earnings into the future, we will work to establish new profit drivers comparable with the Si business from the perspective of medium- to long-term growth. We will focus our efforts on surely bringing development projects that are close to commercialization into commercial operation and on finding and cultivating new themes of development that are close to existing strategically growing businesses.

3. **Strengthening of Competitiveness through Productivity Improvement**

   We will restructure both our manufacturing infrastructure and information infrastructure to boost our competitiveness through improved productivity.

   - **Restructuring of the Manufacturing Infrastructure**
     - We will position the Tokuyama factory as the mother factory of technology and know-how, and link it to the Kashima factory and other plants in the Group and strive to realize an internationally competitive manufacturing infrastructure.
   
   - **Restructuring of the Information Infrastructure**
     - A new business process system will be put into operation in fiscal 2008. By developing the information infrastructure, we aim to upgrade our managerial accounting and improve productivity of the manufacturing section and the office work section.

**Build Systems for the Growth Strategies**

We will build the systems and organizations that act as foundations for implementing the basic strategies for the Centennial Vision and the growth strategies under the new Three-Year Plan and address the reform of human resources. To achieve these objectives, we will take up the challenges listed below.

- **Securing Managerial Resources and Making the Optimum Allocations**
  - We will enhance the system for making the optimum allocation of managerial resources from the perspective of total optimization and promote management resources in growth areas.

- **Globally Competitive HR Development**
  - We will systematically develop human resources that play a key role from a global perspective with a view to overseas expansion.

- **Strengthening Corporate Governance**
  - To establish governance that facilitates an immediate response to the external environment, we will consider introducing a system for external directors and operating officers.

- **Full Utilization of the Balanced Scorecard**
  - We will work to establish the balanced scorecard as a mechanism for running the PDCA cycle and to strengthen the functions for implementing the strategies.
### Tokuyama’s 90-Year History – Venture Spirit & Innovation

In February 1918, the predecessor to Tokuyama Corporation was established in Shunan City in Yamaguchi Prefecture. Having worked on innovations since that time, it marked its 90th anniversary this year. Its history represents a process of evolution for Tokuyama that is synchronized with changes in Japan and the rest of the world.

#### 1918-1944
- Establishment and soda production
- Founder: Katsujiro Iwai
- Experimental Factory built at Kanzaki, Osaka

#### 1945-1959
- Period of growth for the inorganic chemicals business
- 1955-1964: The petrochemicals business is expanded

#### 1960-1974
- Period of growth for the petrochemicals business
- 1974: Companywide efforts are made to reduce energy consumption in the factory.

#### 1975-1989
- Period of growth for the specialty and processing businesses
- 1980: The long-awaited Fujisawa Research Laboratory reaches completion.

#### 1990-2004
- Business strengthening and restructuring
- Operations on two fronts are launched: Integration of businesses, spin-off, upgrades and restructuring
- Development and strengthening of new businesses

- 1994: The Company name changes from Tokuyama Soda Co., Ltd. to Tokuyama Corporation.
- 2005-2008

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Tokuyama CSR Report 2008

Soda ash is a product that Tokuyama has handled since its establishment. Determined to domesticate production of soda ash, the Company worked to establish manufacturing technology based on the Solvay process, which was state-of-the-art technology in those days.

In the wake of the oil shock, fuel for the power generation facilities and cement factories was successively shifted from heavy oil to coal. In addition to the three foundation businesses, namely chemicals, cement and plastic resins, the Company made a decision to invest all management resources in creating the specialty and processing businesses as a fourth pillar that was relatively impervious to the vicissitudes of the oil market.

A succession of businesses that support Tokuyama’s current revenues were launched, including biaxial-oriented film, dental materials and equipment, plastic window sashes, fine chemicals, high-purity chemicals for the electronics manufacturing, polycrystalline silicon, fumed silica, aluminum nitride, medical diagnosis systems and gas sensors.
An Ever-Evolving Integrated Production Base with the Full Use of Resources – Tokuyama factory

The Tokuyama factory is Tokuyama’s leading production facilities. Equipped with one of Japan’s largest private power generation facilities, it represents the sophisticated integration of every manufacturing process. Using a highly efficient production structure, it has achieved a zero emission rate of nearly 100%. Tokuyama is making every effort to build a sustainable society. For example, its cement business actively accepts waste from outside the Company.

Continuous Efforts Toward Integration

Superiority in Infrastructure that Supports a Leading Production Base

The Tokuyama factory is located in the Shunan Industrial Complex fronting the Seto Inland Sea in the south-eastern part of Yamaguchi Prefecture. As one of the largest factories in Japan, occupying 1.91 million square meters, it is Tokuyama’s core production center. It consists of three plants – the Tokuyama plant chiefly for manufacturing inorganic chemicals, the Nanyo plant for manufacturing cement and the Higashi plant for polycrystalline silicon and organic chemicals. These three plants are interconnected by our private undersea tunnel and bridge. The factory also has a well-developed port infrastructure that incorporates 22 internal berths with a depth of 12 meters and one 14-meter-deep public wharf.

A Highly Efficient Energy System Based on Private Power Generation

At the heart of the integration of the Tokuyama factory is its private power plant that features one of the largest power generation capacities in Japan, namely 522,000 kW. The electric power and steam generated are supplied through power lines and pipes to the electrolysis plant and other plants. The factory makes effective use of the steam as well as electric power to attain a high level of energy efficiency.

Recycling Open to Society – Active Acceptance of External Waste

The cement plant constitutes another core of the integration in the Tokuyama factory. As raw materials, it makes effective use of by-products from the Company’s soda ash plant and coal ash from private power plants. It also accepts a large amount of waste and by-products from outside the Company and conducts recycling operations that are open to society. A large portion of the waste and by-products can be used as raw materials for cement production as it contains some elements that are identical to those contained in limestone, clay and silica stone, which are used as raw materials for cement. Combustible waste can also be used as an energy source. The temperature in the cement kiln1) reaches 1,010 to 1,810 degrees Celsius, a temperature so high that the combustible portion is completely burnt and the remaining ash after combustion is used as an ingredient for cement. This means that the cement kiln differs from an incinerator in that it generates no residue. In fiscal 2007, the factory recycled 2.18 million metric tons of waste and by-products, including 0.32 million metric tons generated within the Company. With a view to creating a recycling society, the Tokuyama factory is making continuous efforts every day to improve itself into a more advanced production center.

Integration in the Tokuyama Factory

A private power plant featuring one of the largest power generation capacities in Japan

Trend in Unit Consumption of Waste and By-products

*1 Cement kiln: A rotary kiln used for sintering raw materials in the cement plant

Trend in Material and Thermal Recycling Volumes

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Topic 2

An Ever-Evolving Integrated Production Base

With the Full Use of Resources – Tokuyama factory

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Tokuyama’s CSR Activities

What Are Tokuyama's CSR Activities?

For sustainable growth of the business and society

Tokuyama celebrated the 90th anniversary of its establishment. Throughout its history, the Company has always been aspiring to gain the trust and respect of society. In 1994, we adopted a basic policy of practicing management in harmony with society. The following year, we built a framework for conducting responsible care activities and since then, we have been enhancing the activities through PDCA. Although the term CSR is relatively new, we have been constantly engaged in activities that essentially operate on the same principle as CSR activities to the present.

The roles that enterprises are required to play constantly vary with changes in the circumstances. The nature of corporate activities should always be questioned in terms of its relationship with society. In response to the change, Tokuyama will consistently be seeking the sustainable growth of business and society from a long-term perspective.

Tokuyama’s CSR Approach

Basic Policy

- Overcome the stereotype and break free of precedents
- Continue with reform every day
- Management from a future perspective
- Take a long-term perspective
- Take advantage of the risks
- Management in harmony with society
- Think and act from the customer’s standpoint
- Anticipate the trend of the times
- Management with a compliance or priority
- Aim to be a unique company
- Cultivate the personalities of individual employees

Message

Tokuyama Code of Behavior

1. Fair Business Operations
We will compete with real companies in a fair, transparent and liberal manner.
2. Compliance
We will comply with the laws, regulations and rules. We will remain resolute in our dealings with stakeholders groups that threaten the order and security of civil society.
3. Responsible Care
We will develop and manufacture products that are safe and that serve a valid use in society and make them available to members of society to gain the confidence of our consumers and customers.
- Under our own initiative, we will actively engage in addressing global environmental issues, improvement of living conditions and other activities directed at environmental conservation for a wide-ranging perspective.
4. Communications
We will enhance communications with the various stakeholders in society, including our shareholders, through the proactive and fair disclosure of information.
5. Social Contributions
- We will make a positive social contribution in a good corporate citizen.
- In our dealings in foreign countries, we will respect local cultures and customs and conduct our business operations in a manner that contributes to the development of local communities.
6. Solid Corporate Culture
We strive to create a safe, untroubled and comfortable work environment in which our employees can achieve mental and physical well-being, where the personality and individual characteristics of each employee are respected.
7. Rules of Management
Management is required to understand that its role is to comply with the philosophy underlying this Code of Behavior to take the initiative, to make an effort to improve the system to collect internal and external opinions and to ensure strict compliance with corporate ethics.

Tokuyama Code of Behavior

Tokuyama carries out CSR activities in accordance with its basic policy of engaging in management in harmony with society. Understanding that they will help ensure continuation of the business and establish a sustainable future together with society, we are striving to attain better marks from our stakeholders and to earn the recognition and appreciation of society, to which the stakeholders belong.

As a foundation for CSR activities, we will continue with sound corporate governance and compliance to increase management transparency and ensure thorough internal control and risk management.

The Tokuyama Group is engaged in what it calls the Sunflower Activities. They refer to activities aimed at ensuring that the essential factors of internal control become permanently established within the Group.

In accordance with the Tokuyama Code of Behavior, we will work to ensure good relations with all stakeholders and engage in management in harmony with society in a bid to develop a Tokuyama Group whose members are the enterprises of first choice by their customers.

The Philosophy behind CSR Activities

Tokuyama’s Major Stakeholders

Relationships with customers (p. 21)

Tokuyama conducts customer-focused quality assurance activities based on implementation of its ISO 9000 compliant quality assurance system. Chemical substances are comprehensively managed to ensure safety at all stages of the manufacturing process.

Sustainability: Value Creation in Harmony with Society

Tokuyama’s CSR Activities are based on the idea that companies have a responsibility to contribute to the sustainable development of society. The Company is committed to advancing CSR in its purchasing activities.

Tokuyama takes a proactive and appropriate manner to gain the understanding and trust of stakeholders.

Tokuyama CSR Activities

Global environment

Relationships with the environment (p. 33)

Relationships with communities and society (p. 24)

Relationships with customers (p. 21)

Relationships with employees (p. 27)

Relationships with suppliers (p. 28)

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Relationships with suppliers (p. 28)
The Foundation of CSR - Being a Trusted Company

The Company’s social mission is to develop, manufacture and supply to society useful products as a manufacturer with full consideration given to safety and the environment. We have adopted the basic principle of practicing management in harmony with society. For the Tokuyama Group to follow this basic principle and evolve into a business grouping whose members are the enterprises of first choice by their customers and to meet its corporate social responsibility, we believe that it is essential to continuously work to enhance corporate governance, to construct and improve the internal control system and to develop a framework of compliance.

Corporate Governance

The system of corporate governance is very important in successfully improving corporate value. We believe that we need to conduct everyday inspections and take the necessary steps to ensure solid, ongoing operations. The Board of Directors meets at least once a month to make resolutions on the basic policy and strategy for management of the group, to discuss and decide important matters concerning the manner in which business is conducted and to supervise business operations. As of the end of June 2008, the Board of Directors consists of 14 directors and is chaired by the president.

A director’s term of office is one year. The purpose is to clarify his or her duties and responsibilities and to respond immediately to changes in the business environment.

The Executive Committee is an advisory body to the president for deliberating matters to be referred to the Board of Directors and other critical managerial matters. It was set up to ensure agility and efficiency in business operations as well as quick decision-making. The Executive Committee consists of the heads of four business divisions and those nominated by the president from the directors and associate directors.

The Board of Auditors currently has four members, including two external auditors. Each auditor attends the meetings of the Board of Directors and other key meetings and exchanges information with the internal audit section and accounting auditors as needed in a bid to increase the effectiveness and efficiency of auditing. Standing auditors also join the Executive Committee and provide opinions for maintaining a system for monitoring the general manner in which the directors discharge their managerial duties.

The Auditing Department is an internal auditing body that is independent of divisions engaged in business operations, and currently consists of six members. It performs regular internal audits of different divisions and affiliated companies in the Group.

Internal Control

The Tokuyama Group is using the term Sunflower Activities selected from the suggestions submitted by staff members in the Group in order to create and continuously enhance the internal control system and to ensure that the activities will be implemented over a long period of time. This name represents the attitude and determination of the officers and employees in the Group to perform their duties by remaining cognizant of the fact that they should always behave in a manner that enables them to stand proud.

The Sunflower Committee has been established as the body to promote the Sunflower Activities of the Tokuyama Group. Headed by the president, this committee discusses and makes decisions on basic matters that relate to internal control, and it strives to create, develop and work under a framework for ensuring that business operations are conducted appropriately. The Corporate Social Responsibility Division acts as an office for the Sunflower Committee and is responsible for the practical implementation of the Sunflower Activities. It also ensures compliance with the reporting system for internal control that came into force in April 2008, better known as the Japanese version of the SOX Act.

Compliance

The Tokuyama Group has adopted a basic management policy of placing an emphasis on compliance, and has included in its code of behavior fair business activities and statutory compliance. To improve the compliance framework, the Company expanded the use of the helpline in fiscal 2007 after enlarging it in the preceding fiscal year.

Improvement of the compliance system

The Tokuyama Code of Behavior was revised in July 2003. In March 2004, the Tokuyama Behavioral Guidelines was established and its copies were distributed to all employees. They always carry a card printed with Tokuyama’s Five Conscience Clauses prescribed in the Guidelines and act with an awareness of compliance.

Structure for promoting compliance

Headed by the president, the Compliance Committee makes decisions on the basic concepts, companywide policies, structures and organizations related to compliance. The office for the Compliance Committee plays a central role in the implementation of activities for promoting compliance.

Launch and enhancement of the helpline

As part of its improvement of the compliance structure, Tokuyama launched a helpline as a contact for consultation in October 2003. It has since been dealing with information and inquiries from officers and employees in the Group. In fiscal 2006, the scope of access to the helpline was expanded to accept notifications and consultations from trading partners. In fiscal 2007, the coverage of the helpline was further expanded as part of the ongoing system upgrades. It is now possible for the family members of employees to contact the helpline to report or seek advice.

We continue to develop and enhance the helpline system. For example, an external contact for consultation has been established in addition to the existing helpline.

Tokuyama’s Compliance Vision

Stakeholders

Corporate activities

Social responsibility

Compliance

Open corporate culture

Outline of the Compliance System

Informers and advice seekers

Auditing Department

Helpline

Compliance Committee

Board of Directors

Reporting

Instructions

Corporation

Informers and advice seekers

Instructions

Board of Directors

Internal Control

Stakeholders

Corporate activities

Social responsibility

Compliance

Open corporate culture

Tokuyama’s Five Conscience Clauses

Tokuyama’s Five Conscience Clauses

Our behavior shall:

- Comply with the laws, regulations and internal rules,
- Meet the Tokuyama Code of Behavior and the Tokuyama Behavioral Guidelines,
- Be highly regarded by customers and trading partners,
- Receive high marks from society and general consumers, and
- Be a standard that can be proud of in front of family members and coworkers.

Instructions

Pushing together all of our employees and leaders, we have raised the Tokuyama Code of Behavior and Tokuyama Behavioral Guidelines as our Five Conscience Clauses and are determined to instill them in all employees. The Sunflower Committee, established in 2003, is actively promoting the Five Conscience Clauses and carries out various activities to ensure compliance.

We have also established the Compliance Committee to deal with issues related to compliance and the Sunflower Committee, consisting of directors and senior officials, to examine the activities of the Compliance Committee.

The company has established a Consultation Helpline to receive advice from the public regarding the Tokuyama Code and Behavioral Guidelines. The helpline is for employees and their family members to understand our guidelines and raise any questions or concerns. It is available 24 hours a day, seven days a week.

In fiscal 2014, the company introduced an additional helpline for vendors and trading partners to report any concerns, with the aim of ensuring a stable and secure business environment.

Overall, the company is committed to promoting compliance and raising awareness among employees and stakeholders, ensuring that the Tokuyama Code of Behavior and Behavioral Guidelines are upheld at all times.
Tokuyama's CSR Activities

The Foundation of CSR - Being a Trusted Company

In modern society, information can be a powerful tool, but it is now necessary to also see it as a threat that may undermine corporate survival if it is mishandled. With a clear understanding of this threat and the risk, we aim to implement security measures using the optimum balance of confidentiality, integrity and convenience.

Maintaining and Improving Information Security

Tokuyama continues to actively introduce information technology as one of the drivers of business reform. We recognize that information security is of increasing importance as we become more dependent on networks in a society that has even greater reliance on the Internet, and we have been taking steps to use and protect information properly.

In 2001, our top management at that time declared that voluntary information security initiatives would be taken with the participation of all employees. The fact that we set up the Information Security Committee in accordance with this declaration is testament to our level of awareness of this issue. This Committee has a mandate to develop and implement a comprehensive range of specific steps.

The Information Security Committee was launched with the objectives of maintaining the security of information assets consisting of information and information systems owned by the Company, and encouraging the active use of these assets. It takes the initiative in developing comprehensive security measures for information assets into Information Security Policies. It also makes decisions on basic policies on overall matters related to information security and strives to increase awareness.

Tokuyama’s individual departments separately engage in specific initiatives in accordance with the policy set out by the Committee and with the companywide rules set out in the Information Security Policies that came into effect in March 2002. Group companies create rules based on the Information Security Policies. The Tokuyama Group is united in its commitment to improving security levels.

In addition, we have been developing hardware and software measures to prevent the spread of viruses that accompany the growing use of Internet technologies. We strictly forbid the act of opening any medium brought into the Company on a computer connected to the network, without first performing a virus check on that medium. We also have filtering in place to block access to any website that is not related to work. As a result of these protocols, no serious virus infections have been experienced over the past several years. Every employee is aware that the task of eliminating a virus infection will bring business activities to a standstill and that there would be a serious impact on customer satisfaction. We are proud that the effectiveness of the security measures is supported by this sense of risk and by customer-oriented commitment. In the Internet age, however, it is impossible to attain absolute or permanent security. We will diligently continue with our efforts without placing undue confidence in the existing measures.

Furthering the Protection of Personal Information

Tokuyama regards the protection of personal information as a symbol of the Company’s spirit of valuing individuals and as a key obligation in meeting its social responsibility. Based on this commitment, Tokuyama has created a structure for enhancing the level protection. With the enactment of the Personal Information Protection Law in April 2005, we published our Personal Information Protection Policy on the Company’s website. We also established the Personal Information Protection Promotion Committee and its office, and the section to contact for inquiries from people inside and outside the Company. The head of the Committee has been appointed general manager in this area.

The promotion structure extends to every part of the Company. At each department, a Personal Information Protection Management Officer is appointed to ensure the sound management and operation of personal information and to raise awareness among all employees. We also conduct awareness-raising activities, such as Internet-based education, and regular inspection tours and audits of workplaces to ensure that all our officers and employees are continually paying attention to the importance of personal information in their activities.

RC Promotion System

Chaired by the President and consisting of the Board of Directors, the RC Promotion Committee is Tokuyama’s top decision-making body in relation to its RC activities. It deliberates and approves companywide policies and other environmental, safety and quality measures. Under this Committee, there are a number of subordinate bodies, including the Environmental Measures Committee, the Safety Measures Committee, the Products Safety and Quality Assurance Committee and the Products Assessment Committee. They study specific action plans and conduct product safety assessments. The Directors responsible for environmental, safety and quality matters throughout the whole company work as the leaders of these committees, with the members consisting of the Heads of the management divisions.

RC Promotion Structure and Operation of Management Systems

RC Promotion System

RC activities: Responsible Care refers to the voluntary management activities of companies that manufacture and handle chemical substances to protect the environment and maintain the safety and health of members of the public, and to promote the proper stewardship of chemical substances. RC also refers to publishing the results of the activities and engaging in dialog and communication with society. RC originated in Canada in 1985, and it is now in place in 52 countries around the world. In Japan, the Japan Responsible Care Council (JRC) was established in 1995 within the Japan Chemical Industry Association (JCIA). It had 101 corporate members as of April 1, 2010. Tokuyama being one of the founding members.

We actively work on RC activities as the basis of our environmental management and CSR activities.

Basic Philosophy of Responsible Care

As a member of the Japan Responsible Care Council, Tokuyama Corporation carries out Responsible Care activities that protect the environment and preserve safety and health throughout the entire chemical substance life cycle, from development and manufacturing to use, final consumption and disposal.

Our social mission is to aggressively tackle and systematically solve environmental issues in particular, which, in turn, will lead to sustainable corporate and social development. Based on this recognition, we are promoting Environmental Management, a management policy that expresses the environment in all of our business activities, including development, manufacturing and sales.

Action Objectives

1. Promote environmental protection
   - Implement an ISO14001-based Environmental Management System and reduce the burden on the environment.
   - Observe the laws and regulations
     - Observe international rules, laws and regulations and industrial standards.
     - Thoroughly implement internal export control rules.
   - Promote energy conservation and curb global warming
     - Achieve the lowest unit energy consumption in the industry for each product.
   - Promote resource recycling and work toward reduction and the proper management of waste materials
     - Promote material recycling and the thermal recycling of resources.
   - Work toward achieving a paperless office.
   - Promote process safety, disaster prevention and occupational health and safety
     - Aim for zero accidents and disasters based on the principles of safety self-management and self-responsibility.
     - Achieve a comfortable work environment and protect people’s safety and health.
   - Ensure strict product safety standards
     - Offer environmentally friendly products that can be used with safety.
     - Provide clear information on how to use products and what care to take.
   - Deepen the relationship with trust with society
     - Publish and make information on the Company’s activities concerning environmental protection, process safety, occupational health and safety and chemical product safety.
     - Actively engage in dialogue with the local communities.

Tokuyama’s CSR activities center on Responsible Care (RC) activities. A companywide promotion structure has been created to soundly operate different management systems.

In this way we are continually improving our environmental, safety, production safety and quality management systems.
Tokuyama’s CSR Activities

Evaluation and Management System for RC Activities

Tokuyama adopts a three-year plan in the area of responsible care and determines its policies and targets for separate fiscal years to achieve the plan. Under these policies, the individual divisions create specific plans and engage in their activities. The results of the activities are assessed at the end of the fiscal year so that the plans for the following fiscal year will reflect the findings.

Fiscal year 2017 was the final fiscal year of the previous three-year plan. After conducting a review to identify the continuous improvements achieved and the problems encountered, the Company formulated a new Three-Year Plan starting in fiscal 2018 and has embarked on the activities it included.

Operation of Management Systems

ISO 14001 Environmental Management System
The Tokuyama and Kashima Factories have already acquired ISO 14001 certification. ISO 14001 is an international standard for environmental management systems. In line with the company-wide environmental policy, each factory sets out an environmental policy and the specific goals to be achieved in areas covering environmental impact reduction, energy conservation, waste reduction and resource recycling.

At company headquarters, branch offices and research laboratories, activities are underway based on their respective policies and goals set out in response to their scales, covering energy conservation, waste reduction, resource recycling and other activities.

Assessment Systems

Tokuyama has set up several assessment systems in an effort to reduce environmental and safety risks.

Safety and Environment Assessment
To ensure product safety, Tokuyama conducts a product safety assessment at each stage from research and development to product delivery to the market. We assess the risk evaluation and examine compliance with the statutory requirements from a wide range of perspectives, including the safety of the chemical substances involved, the environmental impact and the effect on human health. We also assess the labeling to ensure that the product information in catalogues, operation manuals, material safety data sheets (MSDS)** and other types of labeling contain no defects in chemical relation to the instructions and warnings and that there are no inappropriate expressions.

Education and Training

Employee education and training covering the responsible care activities are provided for each separate hierarchical group. Practical education and training in relation to environmental management, safety management, occupational health and safety and quality management are offered through actual management activities.

Auditing Systems

Tokuyama has an auditing system that aims at verifying that individual factories and offices engage in appropriate activities in line with the company-wide policies.

Safety and Environment Audit
Tokuyama conducts this audit for the operation safety and environment on a yearly basis to verify the appropriateness of its accident/disaster prevention measures and management activities in relation to environmental conservation. The auditing team is headed by the director, who chairs the Environmental and Safety Measures Committee, and conducts audits of all factories and offices, authorized inspection organizations under the High Pressure Gas Safety Law, logistics departments and the Health Management Center. The results of the audits are developed into reports and distributed to all departments concerned. The results are also presented to the president.

Third Party Auditing
Tokuyama undergoes ISO 9001 and ISO 14001 examinations conducted by accreditation organizations.

Fiscal 2007 RC Activities – Priority Issues and Performance

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** MSDS: Material Safety Data Sheet.
Based on implementation of the ISO 9001 quality management system, Tokuyama’s quality assurance activities place first priority on the customer. The safety management of chemical substances is rigidly instituted at all stages of the production process ranging from research and development to disposal and even including transportation.

**Comprehensive Safety Management of Chemicals**

Data Acquisition and Analysis on the Safety of Chemical Substances

Tokuyama collects and organizes safety data covering chemical substances so that the safety of the chemicals can be assessed. The data collected and organized is used to provide safety data on products and waste. We are working to gain information on the hazards and toxicity of all chemical substances to be newly used, manufactured and discarded by means of product assessment, waste surveys and the analyses of new materials.

Risk Assessment and the Management of Chemicals

To eliminate any pollution to the environment, we monitor the concentration of chemicals in effluents and gas emissions. In addition, we simulate the distribution of the concentration of chemicals and analyze in detail their behavior. Their risks are evaluated after combining the data on concentration and the safety data. The resulting assessment data are used to improve equipment safety measures and the manner of handling chemicals as well as for the education of those who deal with chemicals. They also serve to increase product safety and to provide customers with accurate information.

Compliance with GHS

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)1 refers to a system promoted by the United Nations under which chemicals are sorted by the type and level of hazard and toxicity in accordance with internationally standardized rules to provide labels and safety data sheets that can be understood at a glance. In fiscal 2007, the promotion of GHS was defined as a quality management goal. We work to provide GHS-compliant labeling and MSDS and by classifying according to GHS the chemicals that fall under the expanded scope of the three laws specified below. Chemicals that are subject to the three laws refer to the poisonous and deleterious substances controlled by the Poisonous and Deleterious Substances Control Law, those subject to notification under the Industrial Safety and Health Law and designated substances under the Law Concerning Reporting, etc. of the Release of Specific Chemical Substances to the Environment and Promotion of the Improvement of Their Management.

**Assessment of Products and Labeling**

Tokuyama assesses the safety of both the chemical substances and equipment units that it manufactures, in every stage from research and development through to commercialization. We made 56 assessments of this kind in fiscal 2007. We also conduct labeling assessments for our catalogues, MSDSs and other technical documents. The appropriateness and legality of the representations on product labeling and packaging, prototypes and sample products are examined and any inappropriate representations are corrected. In fiscal 2007, we conducted 315 labeling assessments.

**Process Flow in the Assessment Structure for Ensuring Safety and Environmental Conservation**

- **Commencement of Research and Development**
  - Study on technologies for new products
  - Approval of R&D projects
- **Product Assessment**
  - Initial Risk Assessment
  - Approval of products
- **Safety and Environmental Assessment**
  - Approval of processes
- **Labeling Assessment**
  - Approval of MSDSs
- **Product Promotion**
  - Distribution to customers
  - Approval of operations

**H&S** Activities concerning Tokuyama’s Products

In step with its technological orientation, the Tokuyama Group is committed to protecting public health and safety and to protecting the environment as a global enterprise that contributes to society. As part of its responsible care activities, the IC Chemicals Department embarked on actively providing users with guidance concerning the proper use of Tokuyama products.

We launched a project team that supports this activity, called the EH&S Promotion Team. It provides information on the environment, and on the health and safety to users of Metaklene®, our chlorinated solvent product (1,1,1-trichloroethane) and other products. Dichloromethane is one of the volatile organic compounds that has recently been subject to discharge control. We gather information on conditions and equipment maintenance and on the management status of individual users to provide recommendations on appropriate use.

Tokuyama is committed to building good relationships with all stakeholders, to achieving business management in harmony with society and to engaging in advanced CSR activities to pursue growth together with society.
Harmony with Society

Promotion of Safety and Environmental Management in the Distribution Process

At different locations, Tokuyama organizes periodic safety meetings with its logistics subcontractors throughout the country that it commissions to deal with product transportation. We subject these companies to safety inspections with a view to improving their level of distribution management. They represent part of our positive efforts toward the horizontal expansion of accident reporting and measures to prevent accidents. Within the premises of our Tokuyama Factory, our safety specialists regularly inspect loading terminals and conduct visits and provide guidance aboard freight vessels in cooperation with the logistics companies to increase safety awareness.

We also have a range of emergency measures in place: For example, truck drivers are required to carry yellow cards printed with emergency measures and their trucks must be equipped with appropriate emergency tools so that the necessary action can be appropriately and immediately taken whenever an incident occurs during land transportation. We have also constructed an emergency communication network and incident occurs during land transportation. We have also constructed an emergency communication network and associated frameworks. We conduct emergency drills to train ourselves to prepare for the initial action in the case of an accident.

Crisis Management System

We have established emergency response criteria to deal with potential crises in logistics operations. The equipment and materials necessary for disaster prevention are always ready for use. In the Shunan, Kanto and Kansai districts, we have established a mutual disaster assistance system in cooperation with related logistics operators. The same system has recently been established in the Chubu district as well. We are encouraging our contracted freight companies to equip their trucks with global positioning systems (GPS).

Environmental Preservation Measures and Energy Conservation in Transportation

Together with truck operators, Tokuyama is making efforts to introduce vehicles that are compliant with the emission regulations, as well as vehicles with high fuel efficiency and devices that assist in environmentally friendly driving, such as new digital tachographs. Following the amendment to the Law Concerning the Rational Use of Energy, we are actively making efforts to conserve energy as a specified cargo owner. On a ton-kilometer basis, we have reached a modal shift ratio of 94%, chiefly with marine transport.

Risk Assessment

Before hazardous materials are transported, we conduct risk assessments to verify the safety level of the mode of transportation, the trucking route and the emergency measures to be taken in the event of an accident. If anything that presents a high level of risk is found, it is remedied methodically. Whenever any new logistics facility is constructed or expanded inside or outside a factory, a facility safety assessment is conducted to assess the risk in the phase of facility design.

The Company continues with efforts to enhance the conditions at users’ premises, such as remodeling of defective facilities at the delivery destination. In addition, we work unceasingly to ensure full compliance with the amended Law for the Prevention of Marine Pollution and Sea Disasters. For instance, we ensure that the Emergency Action Manual for the Prevention of Hazardous Liquid Contamination is always available at relevant ground facilities. In addition, we work unceasingly to ensure full compliance with the amended Law for the Prevention of Marine Pollution and Sea Disasters.

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Relationships with Communities and Society

Tokuyama Science Foundation

Tokuyama Science Foundation was established in 1988 with the aim of creating new fields of science, as part of the project for commemorating the Company’s 70th anniversary. Each year, the Foundation grants research subsidies to young researchers in the area of new materials studies. It runs various support programs, including International Exchange Assistance, International Symposium Assistance and Science and Technology Awareness Building Assistance. As of March 2008, the Foundation had financially supported a grand total of 283 research projects and provided a total of $310 million yen in assistance.

Year 2008 marks the 20th anniversary of the establishment of this Foundation. On December 4 and 5, it will be holding a ceremony to commemorate the occasion and to present its achievements.

Tokuyama holds a community dialogue every year. This is a corporate briefing on RC activities given to local communities. Including the chairpersons of community associations that neighbor the Factory. The dialogue included a briefing on the Factory’s environmental, safety and security efforts, a factory tour and an exchange of information. The participants exhibited a great interest in environment and safety issues, and commented that the dialogue and the factory tour reassured them and gave them a good insight into Tokuyama’s sincerity.

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**Internship for High School Students**

**A Japanese-Style Dual System**

In June 2007, two students from Tokuyama Commercial High School participated in a 16-day internship program at the Company. The program consists of part of the Japanese version of the Dual System organized by the Ministry of Health, Labour and Welfare and the Ministry of Education, Culture, Sports, Science and Technology. The same program was run last year as well.

**Donation of Previous Uniforms to Nepal**

As we did in 2006, we donated to Nepali children our old-style uniforms for female employees, which became superseded after we changed the design. This program was originally suggested by one of our female employees as a means of making effective use of the resources after the uniform change. In 2007, we donated white blouses and vests that were formerly worn at the head office and branch offices to Balwapsi Primary and Secondary School in Nagar, which is situated at an altitude of 2400 meters.

**Mikage Bunko**

In 2008, Tokuyama ran the 31st Mikage Bunko program. As part of our CSR activities, this program donates book coupons to elementary schools and junior high schools in Shunan, Yamaguchi Prefecture. On Friday, February 8, Tokuyama’s personnel visited the mayor of Shunan and handed him the contribution for 51 elementary and junior high schools in the city. To commemorate its 90th anniversary, Tokuyama also donated bookracks this year.

**Exchange with Neighboring Communities**

**Exchange among People, the Forest and Water**

The Project for Promoting the Development of Water Sources in Collaboration with Enterprises – *Machi to Mori to Mizu no Kogyaku* (meaning “the Exchange among People, the Forests and Water”) took place under the auspices of the Shunan Agriculture and Forestry Office in the municipally owned forest at Inoyama in the city of Shunan. This volunteer activity is aimed at ensuring the stable supply of high-quality water through the development of a green forest that has a high water-retaining capacity like a dam. This includes weeding out grass that interferes with growth of trees, thinning of trees, pruning branches and planting broadleaf trees. One hundred and forty staff members from Tokuyama participated in the activity. Following the guidance of a forestry instructor certified by the Yamaguchi Prefectural Government, the participants cut some undergrowth, cut the vegetation to make some improvements and pruned the branches of Japanese cedars.

**Exhibition of Environmental Events**

**Yamaguchi Bi-Bi Eco Fair**

On October 20 to 21, 2007, the Yamaguchi Prefectural Government organized an environmental event entitled *Yamaguchi Bi-Bi Eco Fair* at Yamaguchi Kirara Expo Memorial Park in Ajiyu, Yamaguchi City. On October 27, the Shunan City Government held a festival called *Wat Wat Monozenkai Kagayaki Festa* at Pipi 510. Both events attracted a large number of visitors.

Tokuyama is a manufacturer of polycrystalline silicon for solar batteries and is engaged in the development of electrolyte membranes that are central to fuel cells. At these events, we ran an exhibition booth to explain our efforts to combat global warming and to reduce energy consumption. The booth provided the parents and children who visited with the opportunity of building miniature solar cars and of trying their hand at a quiz. There was a long line of people wanting to race the solar cars they created in the exhibition. The children who participated in the race were excited to see their cars racing toward the finish line.
Harmony with Society

Relationships with Employees

Tokuyama is committed to improving the working environment to ensure that individual employees can exhibit their capabilities and engage in their everyday duties with motivation.

In fiscal 2007, the Skills Education and Training Center commenced full-scale operations. The Company endeavors to develop human resources and worked more actively on improving their mental and physical health.

Addressing the Development of Human Resources

Capitalizing on the Skills Education and Training Center

Due to the large-scale retirement of the baby-boomer generation, the manufacturing shop floor now faces two challenges. One is to pass on the skills from experienced workers to the younger generation and the other is to train new operators from the early stages. To meet these challenges, Tokuyama launched the Skills Education and Training Center in April 2007.

Under the slogan, "Experience, Feel and Learn," it offers practical training for acquiring the basic knowledge and operations required by new operators through the use of an education plant and cutaway models of different devices as well as safety education based on dangerous events such as an object falling from above, objects becoming airborne, exposure to liquids and objects becoming snagged on each other or in machinery.

In fiscal 2007, the Center offered technical training to some 90 new employees and provided education concerning dangerous events to approximately 120 technical staff members in their second to fifth years of service. These programs are highly regarded by workers in manufacturing. They comment that the trainees can now be progressively specialists at education at the workplace after basic skills training and safety education based on the Experience, Feel and Learn principle and that their safety awareness is considerably improved by the education.

In the first half of fiscal 2008 as well, we will be offering new employee training to 100 newcomers and additionally offering training in dangerous events to new employees in our group companies.

In the second half, we will be launching skill training for young personnel in their third year of service or later.

Expanding the Human Resource Development System to the Rest of the Group

Centering on personnel and the organization, Tokuyama's Human Resource Development System is designed to strengthen leadership development and managerial capability. In operating this system, we secure a link from level-specific off-the-job development (OJD) to on-the-job development (OJD). This approach is so highly regarded that we won the 19th JMA HRD Award for Excellence in fiscal 2006. This award is presented by the Management Research Institute of the Japan Management Association (JMA).

At the same time, we are working to enhance morale throughout the entire Tokuyama Group towards human resource development. In November 2007, we had the Group's first-ever Human Resource Development Meeting (2007) to discuss the main topic for developing human resources that increase practical abilities. Fifty-four people from 15 companies in the Group participated, including management executives, staff members engaged in personnel affairs and human resource development, as well as front-line managers. They engaged in serious discussions concerning the optimum form that human resource management should take.

The general meeting included presentations covering outstanding examples of human resource development at Group companies. It was followed by three separate focus sessions lasting all day where there was serious debate concerning the ideal form that human resource development should take in increasing practical abilities and enhancing group management.

Work-Life Balance

Tokuyama has implemented three institutional reforms, detailed below, for the purpose of supporting its employees’ work-life balance and building an environment in which children, who play key roles in the next generation, are born and raised in a healthy manner.

First, we extended childcare leave for an additional twelve months. This leave is now available until the child reaches the age of two. Second, we have launched a program permitting shorter working hours for employees caring for preschool children in order to help them pursue their career while engaging in childcare. Third, we have also launched a program of family care leave in consideration of the burdens that employees who provide family care must bear.

Employment of Physically-Challenged Persons

In fiscal 2006, regrettably, Tokuyama was unable to reach the statutory rate for physically-challenged persons employment of 1.80%. Therefore, in fiscal 2007, we actively recruited disabled jobseekers and increased the ratio to 1.91%, thereby achieving the mandatory level.

In the hope that physically-challenged employee will develop at our worksites and through business activities to contribute to society, the Tokuyama Group will maintain its stance concerning the actively employing physically-challenged persons.

Promotion of International Recreational Activities

With the aim of stimulating communication among employees and creating a stress-free workplace that has a cheerful and lively atmosphere, Tokuyama is promoting recreational activities.

As a production center, the Tokuyama Factory traditionally provides lunchtime recreational activities. In accordance with the annual plan, the recreational staff members at individual workplaces take the initiative in actively promoting these activities.

Retired Employees Reemployment Program

Following the move to increase the age at which employee pensions begin to be paid, Tokuyama set up an retired employees reemployment program in fiscal 2007, ahead of the competitors. This program serves another objective of passing on skills in preparation for the retirement of the baby-boomer generation.

In fiscal 2007, 49 employees wanted to be reemployed and Tokuyama reemployed 43 of them in various positions. They have been displaying their superior skills and expertise cultivated at the workplace.

Promotion of Improvements to Mental and Physical Health

Improvements to Health through the THP

In accordance with the Guidelines for the Total Health Promotion Plan (THP) backed by the Ministry of Health, Labour and Welfare, Tokuyama just up the THP Committee. The THP Committee engages in a wide range of activities to address its priority challenges: combating lifestyle-related diseases and enhancing mental health.

Its actions against lifestyle-related diseases include individual guidance provided by industrial doctors and medical personnel on the basis of the results of regular health checkups and a small-scale health workshop conducted by visiting health management personnel at employees’ workplaces.

In fiscal 2007, the THP Committee provided employees with several opportunities to think about their diet. For example, in cooperation with the company canteen as part of nutritional education, it devised a plan to serve healthy lunches that were low-sodium meals having good nutritional balance. To increase mental health, it launched the Genshi Ii Ii Tokuyama Katsudou Initiative and Energetic and Lively Tokuyama. Under this initiative, a provisional stress check was introduced using a simplified occupational stress checklist. The check was conducted for employees at the Tokuyama Factory to confirm that the mental health check was an essential part of the efforts to alleviate stress. As a result, it was expanded in fiscal 2008 to encompass the entire company. In this way, we are taking positive action for protecting the mental and physical health of the employees.

Trend in the Number of Employees on Childcare Leave

<table>
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<tr>
<th>Fiscal Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<tr>
<td>Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Trend in Employment Rate of Physically-Challenged Persons

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate (%)</td>
<td>1.39</td>
<td>1.59</td>
<td>1.80</td>
<td>1.65</td>
<td>1.93</td>
</tr>
</tbody>
</table>

Supporting the maintenance and improvement of health through diet and exercise

At the initiative of the Diet Group and Executive Group, the Health Management Center is working to prevent employees from suffering lifestyle-related diseases. The Diet Group provided nutritional education in the company canteen in fiscal 2007 as an effort to direct employees to maintain a healthy diet.

The Executive Group introduced tests of physical strength at individual workplaces this year. The objective is to ensure that employees understand their own physical strength and the importance of exercise. Diet and exercise are two key pillars of the Health Management System. We take these two approaches to support the maintenance and improvement of our health.

Harmony with Society

Tokuyama CMR Report 2008

Tokuyama CMR Report 2008
Harmony with Society

Trading Partners

In a bid to gain the understanding and confidence of shareholders and investors, Tokuyama is working to provide information in a prompt, appropriate manner.

Fair Transactions

Maintaining good and honest partnerships with its trade partners, Tokuyama makes purchased in accordance with its basic purchasing policy, to ensure that it supplies its customers with good products backed by outstanding technologies.

Optimum Transactions

Tokuyama evaluates its trade partners from an overall perspective that includes quality, pricing, delivery dates, technical capabilities, credibility, safety, after-sale service, serviceability, the ability to respond to incidents, compatibility with existing equipment and business stability to choose suppliers that best suit the Company.

Partnership

Tokuyama aspires to be a good partner that shares its suppliers the common goal of creating good products. To attain this goal, Tokuyama welcomes suppliers with unique proposals for creating an environment that gives new suppliers easy access to opportunities for transactions.

Statutory Compliance

In its purchasing activities, Tokuyama complies with the letter and the spirit of the relevant laws and regulations. Tokuyama also requires its suppliers to comply with them and chooses suppliers that meet the requirement.

Promotion of Green Purchasing

Tokuyama views the Reduce-Reuse-Recycle (3R) perspective as another possible criterion for choosing suppliers to promote environmental conservation in its purchasing activities.

Commitment to Safety and Disaster Prevention

Tokuyama believes that safety is an essential part of business activities and that ensuring safety is the first step in achieving coexistence with society. In taking this stance on safety, Tokuyama thoroughly conducts process safety and disaster prevention activities as well as occupational health and safety efforts. With the aim of preventing accidents and injuries, the Company is striving to provide a favorable working environment.

Safety Audit

Tokuyama conducts audits of all its factories and offices to inspect the status of process safety, disaster prevention and occupational health and safety. If the audit identifies any nonconformity, it is specified and the necessary guidance is given to ensure corrective action. The audit results are reported to relevant departments so that they will implement remediation.

Safety and Environment Assessment

When installing, modifying or adding any equipment, the head of safety calls internal experts to perform assessments at the planning stage, at the design stage and at the stage before going live. Each assessment conducts pre-emptive checks and examines any latent risks that may arise for the purpose of remediation and improvement. This ensures the safety of equipment, process and operation and prevents accidents and disasters from occurring.

Safety Performance

In fiscal 2007, Tokuyama continued with its safety activities to achieve the goal of completely eradicating on-the-job accidents that resulted in workplace absences. The Tokuyama Factory attained this goal in terms of its employment. In April 2008, its accident-free period surpassed 5,400,000 hours to meet the requirement for certification of a Type 1 No-Accident Record. However, it saw two accidents in which the employees of contractors were injured and were absent from work.

The Kamishia Factory has maintained its zero-accident and zero-injury status for 22 years since its inauguration. The Tsukuba Research Laboratory has also been free from accidents or disasters for 18 years since its inauguration.

In fiscal 2007, we spent 600 million yen on upgrading facilities and on increasing disaster control equipment for the purpose of safety and disaster prevention. We will continue to step up our efforts to protect all workers from accidents, whether they are employed by Tokuyama or their contractors.
Commitment to Occupational Health and Safety

Promoting the Safety Management System

Tokuyama has established Occupational Health and Safety Management Systems for individual factories and offices and, in fiscal 2003, put them into operation. At the Tokuyama Factory, its system was upgraded into the Safety Management System in fiscal 2005 to additionally support process safety activities. This factory continues to make improvements by performing risk assessment in terms of work, equipment and processes with a view towards completely removing potential risk factors. In fiscal 2007, the Company invested 200 million yen to enhance and strengthen occupational health and safety.

Implementation of Safety and Health Activities in Concert with Contractors

Tokuyama is working to safeguard all workers at its plants from accidents and injuries in collaboration with its contractors. Specific activities include efforts to share information and raise awareness through joint safety and health meetings; and their departmental equivalents with the participation of Tokuyama’s employees and those of its contractors. Other activities include enhancing safety checks and management by means of safety patrols, purpose-specific safety education and workshops for increasing knowledge of the personnel and training programs to increase the level of skill.

Maintaining a Favorable Working Environment

For the purposes of preventing health problems and providing a working environment that enjoys the full confidence of the personnel, Tokuyama has long been engaged in conducting continuous environmental measurements on workplaces that handle specified chemical substances and organic solvents, thereby improving working procedures and facilities. At the moment, all the workplaces at every factory and office fall under Control Category 1*. We impose stricter voluntary standards to stimulate improvements. The Tokuyama Factory conducts improvements to the working conditions in a broader sense through the use of occupational stress survey results. The results of the improvement are studied for the purpose of bettering workplace conditions.

Although our environmental measurements have confirmed that none of the locations where asbestos has been sprayed on the building constitute any immediate hazard, all the asbestos removal and detoxification work attained completion in fiscal 2006.

Encouraging 5S Activities

The Tokuyama Factory introduced the 5S model workplace accreditation program in 1991 in a bid to stimulate 5S activities. Under this program, each workplace makes an application to undergo an assessment. If it is found that it meets the predetermined requirements, it is accredited as a 5S model workplace. As of the end of March 2008, a total of 210 workplaces had been accredited under this system. The 5S activities are basic to safety. As in the case of work skills, 5S activities will be passed down and intensified with the aim of achieving accident-free status.

SOURCE

*1 The rate of injuries that result in lost work time refers to the number of workers forced into absence through industrial accidents per million cumulative working hours.
*2 The accident severity rate refers to the number of lost work days per one thousand cumulative working hours. This reflects the magnitude of industrial accidents that have taken place.

【VOICE】

Kazunori Kaneda
Assistant Manager, Manufacturing Sec. 1, Chemicals Business Div.

All personnel make an integrated effort to eradicate accidents and injuries.

At our second Chemicals Manufacturing Department, the safety management policy stipulates that every single member take an active part in the safety management activities. With the aim of achieving accident-free operations, the policy encourages us not to ignore any risks associated with the workplace and to address “Safety by Thinking” and “Safety by Visualization.” To encourage and boost safety activities, we have introduced a safety personnel system for conducting sophisticated safety activities. In the future, we will make integrated efforts to completely eradicate accidents and injuries.

SOURCE

*1 Control Category 1 refers to the state in which the concentration of hazardous substances in the atmosphere does not exceed the standard control concentration in most (at least 95%) of workplace units. There are three control categories, namely 1, 2 and 3. Control Category 1 corresponds to the most desirable condition.
Harmony with the Environment

Performance for Fiscal 2007

Tokuyama strives to obtain accurate data on inputs and outputs in its business activities and reduce the burden on the environment to meet its new goals. In fiscal 2007, the Company continued its initiatives to conserve energy, and improved unit energy consumption to a level that is 19.2% lower than the level of 1990. (The Company’s new target for fiscal 2010: 22% reduction compared with the 1990 level.)

---

Flow of Materials in the Production Activities

* All figures represent the input and output amounts associated with Tokuyama Corporation alone in fiscal 2007.

<table>
<thead>
<tr>
<th>Segment</th>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Waste and by-products 1,860</td>
<td>Environmental load materials 14 Process effluent 24,900 (Coolant water and other types of effluent)</td>
</tr>
<tr>
<td></td>
<td>Fuel 2,200 (518,197,852 GJ)</td>
<td>Environmental preservation activities at the Tokuyama Factory</td>
</tr>
<tr>
<td></td>
<td>Raw material 7,620</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industrial water 41,200</td>
<td></td>
</tr>
</tbody>
</table>

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Results of Environmental Preservation Activities in Fiscal 2007 at the Tokuyama Factory

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Impact Reduction</td>
<td>Soot and Dust</td>
<td>-11%</td>
<td>-18%</td>
<td>( )</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Water Quality</td>
<td>COD</td>
<td>+5% or less</td>
<td>+14%</td>
<td>( )</td>
<td>-7%</td>
<td>-7%</td>
</tr>
<tr>
<td></td>
<td>Nitrogen</td>
<td>±1%</td>
<td>±19%</td>
<td>( )</td>
<td>±1%</td>
<td>±1%</td>
</tr>
<tr>
<td></td>
<td>Phosphorus</td>
<td>±1%</td>
<td>±41%</td>
<td>( )</td>
<td>±1%</td>
<td>±1%</td>
</tr>
<tr>
<td></td>
<td>PRTR</td>
<td>-15%</td>
<td>±3%</td>
<td>( )</td>
<td>-24%</td>
<td>-50%</td>
</tr>
<tr>
<td>Global Environment Conservation</td>
<td>Energy Consumption Index</td>
<td>16.0%</td>
<td>19.2%</td>
<td>( )</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Energy Consumption Index</td>
<td>Lower than the level of March 1990</td>
<td>Lower than the level of March 1990</td>
<td>( )</td>
<td>Lower than the level of March 1990</td>
<td>Lower than the level of March 1990</td>
</tr>
<tr>
<td>Waste-Reduction</td>
<td>Utilization of Waste</td>
<td>94.0% or more</td>
<td>94.2%</td>
<td>( )</td>
<td>94% or more</td>
<td>94% or more</td>
</tr>
<tr>
<td></td>
<td>Zero-Emission Ratio</td>
<td>99.8% or more</td>
<td>99.9%</td>
<td>( )</td>
<td>99.9% or more</td>
<td>99.9% or more</td>
</tr>
</tbody>
</table>

*Rating: The circle refers to success in attaining of the target and the cross refers to failure to attain the target.

Environmental Accounting

To facilitate understanding and analysis of how much is invested in and spent on environmental preservation and for thus improving the effectiveness of environmental investment, Tokuyama has been implementing environmental accounting since fiscal 2000. In fiscal 2007, our investment in the environment rose about 800 million yen from a year earlier while spending and the economic benefits each grew some 500 million yen.

---

Environmental Costs

Nearly 30% of Tokuyama’s environmental investments were assigned to anti-pollution measures, about 20% in global environmental preservation and the remaining approximately 50% in resource recycling. The major destinations of our environmental investments include replacement of denitrification equipment, replacement of bag filters and the installation of waste recycling equipment.

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Economic Benefits

To analyze the economic benefits, we calculate nothing but gains on the sale of valuable waste, the costs of waste treatment for reuse and the real benefits of gains on cost-cutting of fuel and energy consumption. Assumed economic benefits are not included in the estimates. In fiscal 2007, we reported 1.9 billion yen worth of economic benefits, up by around 0.5 billion yen from the preceding fiscal year.

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Environmental Costs

Costs of Environmental Preservation

<table>
<thead>
<tr>
<th>Classification of Environmental Preservation Costs</th>
<th>Principal Activities</th>
<th>Amount Invested (JPY million)</th>
<th>Total Amount Spent (JPY million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs in the Business Area</td>
<td>Pollution Control</td>
<td>551</td>
<td>3,513</td>
</tr>
<tr>
<td></td>
<td>Replacement of denitrification equipment</td>
<td>372</td>
<td>1,130</td>
</tr>
<tr>
<td></td>
<td>Materials Recycle</td>
<td>817</td>
<td>1,948</td>
</tr>
<tr>
<td></td>
<td>Management Activity Costs</td>
<td>30</td>
<td>293</td>
</tr>
<tr>
<td></td>
<td>Social Activity Costs</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Costs for Environmental Partners</td>
<td>0</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,798</td>
<td>4,407</td>
</tr>
</tbody>
</table>

---

Economic Benefits

<table>
<thead>
<tr>
<th>Item</th>
<th>Economic Benefit</th>
<th>Economic Benefits (JPY million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions Reduction in Energy Consumption</td>
<td>CO2</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>N0x</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>SOx</td>
<td>3%</td>
</tr>
<tr>
<td>Costs of Environmental Treatment</td>
<td>Waste treatment costs</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Materials Recycle</td>
<td>25%</td>
</tr>
<tr>
<td>Costs of Environmental Treatment</td>
<td>Management Activity Costs</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Social Activity Costs</td>
<td>17%</td>
</tr>
<tr>
<td>Costs of Environmental Treatment</td>
<td>Total</td>
<td>1,677</td>
</tr>
</tbody>
</table>

* The data in the table at the right are based on Environmental Accounting Guidelines 2002 published by the Ministry of the Environment.

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Harmony with the Environment

Commitment to the Prevention of Global Warming

Prevention of global warming is a key challenge to be addressed by corporate citizens. Tokuyama makes constant achievements through the conservation of energy in business activities and supports the conservation of energy in employee households.

Promotion of Energy Conservation

Tokuyama consumes a huge amount of energy in the processes of manufacturing its core products, such as caustic soda, cement and polycrystalline silicon. Carbon dioxide, one of the greenhouse gases, is generated chiefly by burning fossil fuels and also by the decarbonization of limestone used as a raw material in the cement production process.

Aware of the high priority of preventing global warming, the Company is conducting energy conservation activities to reduce carbon dioxide emissions.

The Tokuyama Factory is responsible for at least 99% of our energy consumption. It finished replacing the No. 7 Unit in its private power plant in fiscal 2007. After introducing circulating fluidized bed combustion (CFBC) boilers, the new unit burns waste tires and biomass alternative to coal by combining them with coal. Moreover, it has introduced a steam-extraction turbine to improve energy efficiency.

As a result of our energy conservation activities conducted in the past, the unit energy consumption in fiscal 2007 was 19.2% lower than the 1990 level. This means that we met our fiscal 2010 target of achieving a 17.5% reduction in the third straight year.

In the future, the Company will be stepping up efforts to reach a new target of lowering the unit energy consumption to 22% below the 1990 level by fiscal 2010.

The Tokuyama Factory received the Minister of Economy, Trade and Industry Award for Excellent Energy Management Plant in fiscal 2007. Its earlier efforts in energy management and energy conservation have earned high marks. We also take part in the Initiative to Develop the Hydrogen Frontier Yamaguchi. The Hydrogen Town Model Project employs hydrogen supplied from our plant, which is pipped directly to general households.

The Tokuyama Factory won a Minister of Economy, Trade and Industry Award for Excellent Energy Management Plant.

The Tokuyama Factory won a prize from the Minister of Economy, Trade and Industry in Fiscal 2007 Award for Excellent Energy Management Plant.

Presented by the Ministry of Economy, Trade and Industry, this award recognizes outstanding energy management results of factories and other business establishments with the aim of fostering energy management. There are three prize categories—one from the Minister of Economy, Trade and Industry, one from the Director-General of the Agency for Natural Resources and Energy and the other from the Director-General of the Regional Bureau of Economy, Trade and Industry. The prize presented to the Company, the Minister’s prize, is the most prestigious of the three prizes. In this fiscal year, a total of six factories across the country won the prize from the Minister of Economy, Trade and Industry.

Under the initiative of its Energy Management Committee headed by the factory chief, the Tokuyama Factory makes painstaking efforts for rational use of energy. In the past three years, it has introduced a high-efficiency salt electrolytic cell, systematized the computation of electric and steam distribution for cutting the total fuel consumption of the Factory’s private power plant units, and replaced the cement cooler with a more modern one that offers superior heat recovery. With these actions, it successfully reduced energy consumption that is equivalent to at least 30,000 kiloliters of oil. We understand that the prize was granted in recognition of the activities conducted by individual manufacturing divisions led by the Environment and Safety Department chiefly for conducting its environmentally friendly safety operations.

Tokuyama wins the prize from the Ministry of Economy, Trade and Industry on January 10, 2006.

Efforts at Our Offices

Tokuyama takes part in the Cool Biz campaign that began as a national movement in the summer of 2005. In addition to our conventional energy conservation efforts at our offices, we have encouraged our employees to work in light clothing and introduced thorough temperature control of the air conditioners.

As a consequence, for instance, the Tokyo headquarters stopped its power consumption during the four-month period from June to September 2007 from soaring above the level of the preceding year, although the average temperature was 0.7 degrees Celsius higher during the period compared to a year earlier.

The Cool Biz Benefit

(All the Tokyo head office from June to September)

I have purchased a solar power generation system.

When I was rebuilding my house, I heard that the solar power generation system from the housing manufacturer was of a silicon type. I was happy to learn that because it used a glass plate in the construction and maintenance at prefabricated material panels. The system was low-maintenance, but it was small and not very noticeable. Nevertheless, the installation at my house is displayed on the monitor screen of the housing manufacturer, so my family members can see it whenever they want. It costs me about 100 yen per day, and I hope it will encourage my family members to contribute to the expanded use of solar power generation and help stop global warming.

Program to Encourage Anti-Global Warming Actions Launched in Commemoration of the 90th Anniversary

Tokuyama has a basic policy of pursuing management in harmony with society. In accordance with this policy, the Company is stepping up its environmental, energy conservation and social contribution efforts in an effort to create a sustainable society.

As part of these efforts, Tokuyama launched a program to encourage anti-global warming initiatives in April 2008 in commemoration of the 90th anniversary of the Foundation of the Company.

This program covers part of the costs incurred by employees purchasing and installing specific environmentally friendly products closely related to the Tokuyama Group’s activities, namely the main windows for residential use and the solar power generation system. This prize is to be given to employees in the household sector by raising awareness against global warming and by encouraging householders to conserve energy. The prize is open to all employees of the Tokuyama Group and applies to any of the specified products irrespective of the make.

To continuously increase awareness of the program within the Group, we present the program in our in-house newsletter and intranet to encourage our personnel to take advantage of the public support program. Theses internal media communicate a wide range of information on global warming to ensure that the issue is better understood by the Group’s employees.

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Air Pollutants Emissions

Every boiler in Tokuyama’s private power plants is equipped with a flue gas desulfurization system to reduce sulfur oxides (SOx) emissions. In fiscal 2007, as in the preceding year, we continued to consider operations of our private power plants to successfully slash SOx emissions. To reduce nitrogen oxides (NOx) and soot emissions, denitration equipment, low-NOx burners and high-performance dust collectors are added to the sources of NOx and soot emissions, namely boilers and cement calcination furnaces. In fiscal 2007, the sluggish cement market resulted in poorer operation of cement manufacturing systems and in lower NOx and soot emissions.

Hazardous Air Pollutants Emissions

Tokuyama devised a voluntary reduction plan and continuously takes measures against chloroethylene and three other substances it produces that are among the 12 substances subject to voluntary management under the Air Pollution Control Law. Despite the efforts, the emissions of the four substances increased slightly after an increase in frequency of starting and shutting down the equipment.

Industrial Effluent and Water Pollutants Emissions

At the Tokuyama factory, the hydrogen ion concentration (pH) and the suspended solids (SS) concentration in industrial effluent are under strict control. The Kashiya factory contracts with a terminal treatment plant to treat effluent. To treat process effluent that contains organic substances, activated sludge process equipment has been installed to reduce the chemical oxygen demand (COD). Since fiscal 2006, our measurements have been covering nitrogen and phosphorus as well. They are subject to total volume control under the Water Pollution Control Law. In fiscal 2007, we saw an slight increase in emissions due to the high level of equipment operation, but the emission levels are considerably below the regulatory limits.

Breakdown Graph of Industrial Waste Treatment in Fiscal 2007

- Effective Utilization Rate (%): Internal Recycling + External Recycling / Total Waste Generated
- Zero-Emission Rate (%): Total Waste Generated / Total Waste Generated + Landfill Volume

Tokuyama worked intensively to reduce and recycle waste. The rate of effective utilization of waste reached 94.1% and the zero-emission rate was 99.9%.
The Tokuyama Group continued to develop environmental products and recycling technologies in fiscal 2007. Initiatives included the development of technologies for mass producing polycrystalline silicon for solar cells, demand for which has been increasing sharply, and operation of a verification plant.

**Development of Environmental Products and Technologies**

**Polycrystalline Silicon for Solar Cells**

Helping to prevent global warming through solar cells

Tokuyama develops hydrocarbon-based electrolyte membranes for direct methanol fuel cells (DMFCs) and anion fuel cells. DMFCs look set to serve as power sources for cell phones, laptop computers and other mobile electronic devices.

The development of cation type electrolyte membranes*1 for DMFCs was conducted jointly with Asahi Kasei Chemicals Corporation, and successively produced a high output type and a low methanol permeability type. The two companies achieved substantially improved performance with their electrolyte membranes for DMFCs and began supplying samples. The high output type produces output of at least 130 mW/cm². The low methanol permeability type is a revolutionary hydrocarbon-based electrolyte membrane with methanol permeation reduced to one-twentieth the level of the fluoroethylene electrolyte membrane.

We started supplying anion electrolyte membrane samples two years ago. One of the advantages of anionic fuel cells lies in the fact that non-platinum catalysts and different types of fuels can be used. They have been attracting attention as the source of the next generation of fuel cells, which are both environmentally friendly and can be used in vehicles and elsewhere. At present, new fuel cells incorporating Tokuyama’s anion electrolyte membranes are being developed in many different locations around the world. We are striving to achieve a de facto standard for anion electrolyte membranes.

**Polycrystalline Silicon for Solar Cells**

Helping to prevent global warming through solar cells

Polycrystalline silicon is used as a material for solar cells, as part of the anti-global warming initiative. The fight against global warming is an urgent issue that concerns all humanity. Many countries are working to manufacture solar cells for photovoltaic power generation with a view to effectively using solar energy, an environmentally clean source of energy that is available to everybody equally. The power generation capacity of solar cells produced in 2007 reached 3713 megawatts (Source: PV News, March 2008). This capacity exceeds the 2001 level of 400 megawatts by a factor of 9.3.

Nearly 40% of solar cells are produced from polycrystalline silicon. Tokuyama currently supplies some of its polycrystalline silicon products as a material for solar cells, as part of the anti-global warming initiative. We expect to increase our production of polycrystalline silicon for solar cells by an additional 500 metric tons a year in 2009. Facility construction is progressing well and according to plan. The use of solar cells will not increase and help prevent global warming unless the cost of polycrystalline silicon, used as a material for solar cells, is reduced. We are now running a verification test at a plant with an annual production of 208 metric tons using the VLD method that can in theory produce polycrystalline silicon quickly and efficiently.

**A Closed System for Liquid Developers**

Material recycling for used liquid developers

Tokuyama and Sharp Corporation finished developing material recycling technologies for used liquid developers in liquid crystal panel plants. In April 2005, a closed system to collect, recycle and reuse development solutions between Sharp Corporation’s Mie Plant in Taki-gun, Mie Prefecture and Tokuyama’s dedicated plant have began commercial operation. We conducted a three-year demonstration trial with a pilot plant to identify and address practical problems from a number of different perspectives. As a result, the system has been operating at a high level of satisfaction for three years since the commencement of commercial operation.

Going forward, we aim to improve the technologies and reduce costs so that they can be used without anxiety, not only by liquid crystal panel manufacturers but by many other liquid developer users as well. We are also developing product manufacturing and disposal technologies that have low environmental impacts right through the supply chain, encompassing the use and disposal by manufacturers and users of liquid developers.

**Ion Exchange Membranes**

Clean technologies that help prevent environmental pollution

ASTOM Corporation, a Tokuyama Group company, helps resolve environmental problems with its separation technology based on the NEOSEPTA ion exchange membranes and the ACILYZER high performance electrodepositions incorporating NEOSEPTA. Ion exchange membranes facilitate the selective permeation of positive and negative ions dissociated in solution. Traditionally, ion exchange membranes have been used in salt production, food, fresh water generation, pharmaceuticals and the treatment of waste liquids. Today, ion exchange membranes have application in the separation and collection of acid and alkaline in waste liquids, the treatment of leachate at waste disposal facilities and the removal of nitrate nitrogen from groundwater as part of initiatives to prevent environmental pollution. Ion exchange membranes are therefore attracting the attention of the international community as a clean technology that serves to stop environmental pollution.

In fiscal 2007, they were used to refine organic acid for biodegradable plastics, for the high-efficiency resource recycling of pickling wastewater and for amine refinement from waste amine catalysts emitted from petrochemical plants. These separation technologies will be of increasing importance in the battle against global warming. It is hoped that they will be actively used in creating the recycling society of the future.
The Triple Shanon Plastic Window Sash

Releasing higher performance plastic window sashes to serve energy conservation (CO2 reduction) in households

Shanon Corporation, one of Tokuyama's group companies, manufactures and sells the Shanon Window, plastic sashes, with exceptional levels of air tightness, thermal insulation, sound proof and moisture condensation proof characteristics.

To prevent global warming, all companies and citizens are required to reduce the emissions of carbon dioxide and other greenhouse gases. While efforts to reduce emissions are continuously improving in the industrial sector, there is a huge gap between the reduction target and the actual results in the household sector. Effective solutions are needed in this area. The residential construction industry takes many different actions. Among others, plastic window sashes are attracting attention for their superior performance in reducing energy as they add a high level of air-tightness and heat insulation when used in residential houses.

We now see some houses without heaters emerging in the market. Their Q value is low at 1.0 W/m2k. The lower the Q value, the higher the level of heat insulation. In creating these houses, it is essential to improve the performance of plastic window sashes for high-quality windows.

In April 2008, Shanon Corporation released the Triple Shanon, which features the lowest Q value at 1.23 W/m2k of any product in the Japanese window sash market. A low Q value reflects a high level of heat insulation. With the Triple Shanon, electricity costs are about 35% lower than with an ordinary aluminum-plastic composite window sashes. This product helps cut carbon dioxide emissions.

**Terminology**

1. The Q value is the heat loss coefficient and represents the heat insulation performance of the entire building.

2. The expression, "15% lower," is based on the new reference rate for electric power set by the Home Electric Appliances Fair Trade Conference under the SMASH simulation program.

**Tokuyama Factory**

**Location:** 1-1, Megajo-cho, Shunan, Yamaguchi Prefecture

**Employees:** 1,910,000 square meters (total area)

**Main Products**

- Cement, concrete, organic and inorganic chemical products, polyurethane foams, silica, and steel fibrils and others

**K Value**

A Cross-Section View of the Window Sash

- **K Value** = 1.23 W/m2k

**Site Report**

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**Seichi Shraga**

Central Manager of Towada and Shunan Business

**Tokuyama Corporation’s Kashima Plant**

Pharmaceuticals (X-ray contrast agents, stomach and duodenal ulcer treatment drugs, drugs for treating diabetes, blood pressure lowering agents, and anti-inflammatory agents); adhesives, denture relining materials, impression materials, plastic materials and investment materials

**Osamu Iwamoto**

General Manager of Cashima Factory

**Kashima Factory**

**Location:** 26, Sarayama, Kamisu, Baraki Prefecture

**Employees:** 81

**Factory area:** 101,000 square meters

**Main Products**

- Dental materials (restorative materials, adhesives, denture relining materials, monomer, light modulating materials, hard coat solutions)

**Performance Data**

- **COD Emissions**
  - Unit Fiscal 2003: 383 metric tons
  - Unit Fiscal 2004: 383 metric tons
  - Unit Fiscal 2005: 349 metric tons
  - Unit Fiscal 2006: 360 metric tons
  - Unit Fiscal 2007: 363 metric tons

- **Effluent**
  - Unit Fiscal 2003: 2,170 metric tons
  - Unit Fiscal 2004: 2,180 metric tons
  - Unit Fiscal 2005: 2,130 metric tons
  - Unit Fiscal 2006: 2,170 metric tons
  - Unit Fiscal 2007: 2,120 metric tons

- **Complaints**
  - Unit Fiscal 2003: 3
  - Unit Fiscal 2004: 5
  - Unit Fiscal 2005: 5
  - Unit Fiscal 2006: 3
  - Unit Fiscal 2007: 6

**Performance Data (in total of three companies)**

**Substance**

- **COD Emissions**
  - Unit Fiscal 2003: 10,940 metric tons
  - Unit Fiscal 2004: 11,500 metric tons
  - Unit Fiscal 2005: 11,400 metric tons
  - Unit Fiscal 2006: 12,100 metric tons
  - Unit Fiscal 2007: 11,100 metric tons

- **Energy Consumption**
  - Unit Fiscal 2003: 51,800 thousand GJ
  - Unit Fiscal 2004: 53,000 thousand GJ
  - Unit Fiscal 2005: 53,900 thousand GJ
  - Unit Fiscal 2006: 54,100 thousand GJ
  - Unit Fiscal 2007: 55,700 thousand GJ

**PRTR Substances Emissions and Displacement by Substance in Fiscal 2007**

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Activities of Group Companies

Tokuyama understands that responsible care activities should be conducted on a group-wide basis. The Company has signed RC management agreements with Tokuyama Group companies both inside and outside Japan engaging in production activities to support their activities. We collect data on the environmental impact of group companies and their safety management indicators and conduct safety and environmental audits at the rate of several group companies per year. By means of these actions, we monitor and enforce RC activities conducted at individual group companies. The trend of regulatory standards and other information are shared with our group companies. We also provide our group companies with assistance in acquiring ISO 14001 and ISO 9001 certification.

Sun "Tox Co., Ltd.

Sun Tox Co., Ltd. is located on the premises of Tokuyama Corporation's Tokuyama Factory, the Kanto Plant produces 25,000 metric tons of biaxial-oriented and cast polypropylene films per year. As a Type I Energy Management Designated plant, it has been making strides in energy conservation. In fiscal 2004, it introduced a co-generation system to ensure the effective use of energy. As a result, its consumption of heavy oil in the boilers fell below half the level for fiscal 2003. In addition, the number of unanticipated shutdowns caused by power failure was reduced to nearly zero.

In February 2008, the Kanto Plant obtained certification of conformity of its occupational safety and health system from the Japan Industrial Safety and Health Association. With ISO 14001 and ISO 9001 certification, it adopts environmental, safety and quality management systems. Nominating and Health Association. With ISO 14001 and ISO 9001 certification, it obtained certification for the Occupational Health and Safety Management System in February 2008. Going forward, it will be introducing health and safety activities centered on risk assessment and developing them into a management system through a PDCA cycle.

Under the slogan of “Take pleasure in production, be stringent with quality and adhere to safety,” the Tokuyama Plant aims to implement plant management in a manner that earns the trust of society, the customers and employees.

RC activities of the Tokuyama Plant

Located within the premises of Tokuyama Corporation’s Tokuyama Factory, the Tokuyama Plant produces 23,000 metric tons of biaxial-oriented polypropylene films and cast polypropylene films (including co-extrusion multi-layer film) per year. In conjunction with the Tokuyama Factory, it addresses environmental preservation and maintains ISO 14001 certification. Since fiscal 2005, it has been slaming manufacturing losses as a means of reducing unit energy consumption. The plant is committed to recycling all generated manufacturing waste.

It obtained certification for the Occupational Health and Safety Management System in February 2008. Going forward, it will be introducing health and safety activities centered on risk assessment and developing them into a management system through a PDCA cycle.

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Tokuyama Polypropylene Co., Ltd.
A Review on Tokuyama's CSR Report 2008

Eriko Nashioka
Certified Public Accountant and Director of the Institute for Environmental Management Accounting

Evolution into a Company Based on CSR Management

Tokuyama’s CSR Report convinces me that Tokuyama is an honest, diligent company with a long history. Independently of CSR, I feel that the Company has long been taking a sincere attitude towards its stakeholders. However, CSR management in its optimum form today needs to combine individual actions systematically. I understand that Tokuyama is aware of that and is now striving towards it.

A Management Structure for Achieving the Centennial Vision

Envisioning the optimum form of the Company in its Centennial Vision after marking the 90th anniversary, Tokuyama has adopted CSR as a basis of its management. That reminds me of its strong determination to push ahead with CSR activities. I think the Company’s continuation in the past 90 years and its aspiration toward its centennial are supported by its ability to adapt to new times.

This report refers to several goals and plans. I believe they are all backed by Tokuyama’s philosophy and that they are implemented in a sound manner. However, I feel that the interrelations among the separate plans are a bit too complicated. Among other things, it is an urgent priority to reorganize and integrate the principle behind the responsible care activities that have long been actively performed with the new concept of CSR management. The Centennial Vision deserves high marks as a statement of what the enterprise should be like in the future and I hope that it will be realized.

The Notion of Human Resources

Human resources are the foundation that can be compared to CSR. I realize that Tokuyama values people. The slogan of “standing tall like a sunflower proudly facing the sun” is a good phrase that depicts the ideal style of business from people’s standpoint. Tokuyama is surrounded by a broad array of human stakeholders including its employees. People becomes assets through enhanced communications. It is a key challenge in the future CSR management. I fear that Tokuyama will be building a PDCA system for personnel and other social affairs. I expect that this will further enhance CSR management.

Environmental Preservation Activities in the Core Business

I see from CSR Report that Tokuyama has long been actively engaged in environmental preservation activities. At the Tokuyama Factory, the birthplace of the business, greater environmental efficiency is consistently sought all through the processes, including installation of private power plants and integration. The Company’s business operations are linked with environmental conservation to ensure that its core businesses are matched with the age of the environment. For example, Tokuyama makes use of waste generated by external businesses as an ingredient in its cement business and produces polypropylene, films and others.

Information Disclosure and Awareness-Raising Activities

The report is of a length that can be easily digested and provides footnotes for technical terms. It is very reader-friendly. Showing how Tokuyama’s products are found in everyday life, it is designed to bring Tokuyama’s close involvement with the public. The report will be even easier to read if the color scheme and consistency are improved. I hope that the CSR Report will be actively used as a means of deepening the understanding of employees and other stakeholders and for developing them into human assets.

Receiving Comments from Third Parties

I think that we have received on-target comments and remarks on our current circumstances and problems. In particular, we realize that it is an important task to reorganize and integrate the principle of responsible care and other past activities and the principle of CSR management. We will be reviewing these activities from the standpoint of stakeholders to clearly identify the direction of our CSR management. And we will be building a mechanism for efficient operation of the PDCA cycle with the aim of positioning into a manufacturing company in harmony with society.

Editor’s Notes

This edition of the CSR Report has been produced with a focus on reporting Tokuyama’s CSR activities in the clearest possible manner. This is our second edition of CSR Report and we at the editing team worked to further enhance the reporting on social commitment.

Year 2008 marks the 90th anniversary of Tokuyama’s establishment as well as the initial year of our new Three-Year Plan. Giving consideration to these factors, we have designed this CSR Report to promote an understanding of our initiatives in the lead-up to the Company’s centennial.

On the other hand, we realize the need to continue improving the content of the CSR Report as well as the activities themselves. We are happy to accept your frank feedback and suggestions so that we can review your suggestions to produce an enhanced CSR Report in the future.

For inquiries, please contact:

Responsible Care Management Department, Corporate Social Responsibility Division
Tokuyama Corporation
Shibuya Kome Bldg., 3-3-1 Shibuya, Shibuya-ku, Tokyo 150-8331 Japan
Phone: +81-3-3499-8478
Fax: +81-3-3499-8961

* To ensure accessibility to as many readers as possible, the CSR Report is also available on Tokuyama’s website: