Tokuyama Corporation

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Published in August 2016

Chemistry with a heart
TOKUYAMA

CSR Report 2016

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Harnessing the Potential of Chemistry to Support a Century of Service to Society

Since its founding in 1918, the Tokuyama Group has overcome many obstacles on its quest to deliver products and services that truly benefit people's lives. From the production of soda ash in Japan to cement and diverse chemicals, Tokuyama makes the most its technology and experience to serve a wide range of sectors including electronics, ICT, lifestyle, healthcare, environment, and energy. Recently articulating the new "Our Vision" for achieving sustainable growth, Tokuyama is embarking on another century in business by building a new foundation as it seeks to create new value for the betterment of society.

Values

Customer satisfaction is the source of profits

A higher and broader perspective

Personnel who consistently surpass their predecessors

Integrity, perseverance, and a sense of fun

Mission

Centered on the field of chemistry, the Tokuyama Group will continue to create value that enhances people's lives

Our Vision

Established May 2016

Aspirations

Shift from a focus on quantity to quality

FY2025

Global leader in advanced materials

Leader in its traditional businesses in Japan

Company Outline

Company name:	Tokuyama Corporation
Location:	**Tokyo Head Office** FRONT PLACE AKIHABARA, 7-5, Sotokanda 1-chome, Chiyoda-ku, Tokyo 101-8618, Japan Tel: +81-3-5207-2500 Fax: +81-3-5207-2580 **Tokuyama Factory** 1-1, Mikage-cho, Shunan-shi, Yamaguchi 745-8648, Japan (Registered address) Tel: +81-834-34-2000 Fax: +81-834-33-3790 **Other facilities in Japan** Kashima Factory, Tsukuba Research Laboratory, Osaka Office, Takamatsu Branch, Hiroshima Branch, Fukuoka Branch, Sendai Branch, Nagoya Branch, Shunan Sales Office
President:	Hiroshi Yokota
Established:	February 16, 1918
Capital:	¥10 billion (as of June 30, 2016)
Number of employees:	5,797 (consolidated basis; including 1,390 working overseas); 1,888 (non-consolidated basis) (as of March 31, 2016)
Number of group companies:	85 (as of March 31, 2016)
Main businesses:	Manufacture and sale of the following chemicals and products **Chemicals:** Soda ash, chlor-alkali, vinyl chloride and new organic chemicals **Specialty Products:** Polycrystalline silicon, fumed silica, high-purity chemicals for electronics manufacturing and aluminum nitride **Cement:** Cement, recycling and environment-related business **Life & Amenity:** Fine chemicals, microporous films, synthetic resins, ion exchange membranes and dental materials
Securities code:	4043 (First Section of the Tokyo Stock Exchange)

CONTENTS

Editorial Policy

● The *CSR Report 2016* has been compiled for the purpose of providing stakeholders with clearly presented information on the Tokuyama Group's CSR initiatives and overall business activities. It is an integrated report available as a printed booklet or online PDF file. The PDF edition, available at the website below, includes more detailed numerical data and other information as well as other articles which could not be included in the print edition due to space limitations.
www.tokuyama.co.jp/eng/csr/report/

● Eriko Nashioka of the Institute for Environmental Management Accounting was invited to offer a third-party opinion on this report.

● The *CSR Report 2016* has been produced based on the Environmental Reporting Guidelines (Fiscal 2007 edition) published by the Ministry of the Environment of Japan.

Scope of the Report

Period covered: Performance data is from fiscal 2015 (April 1, 2015 to March 31, 2016); certain activities carried out in fiscal 2016 are also included.

Companies covered: Tokuyama Corporation; environment-related data is for the Company's Tokuyama Factory and Kashima Factory; some performance data includes 11 main manufacturing subsidiaries in the Tokuyama Group.

Areas covered: Activities reported on were mainly carried out in Japan, however, some activities include group subsidiaries outside Japan.

Date of publication: August 31, 2016

On the cover

The artwork on the front and back covers employs a color gradation technique to express a 24-hour day. The images show everyday scenes suggesting how Tokuyama's products can be useful for creating value for people and societies around the world in both the present and the future.

Centered on the field of chemistry, the Tokuyama Group will continue to create value that enhances people's lives

Hiroshi Yokota

Hiroshi Yokota
President

Looking Back on 2015

In fiscal 2015, the Tokuyama Group recorded a year-on-year increase in net sales and operating income, due to the continued strong performance of our existing businesses, driven by a group-wide effort to enhance revenues. At the same time, for the second consecutive fiscal year, we recorded an impairment loss for Malaysian operations. In formulating the new medium-term management plan, we conducted discussions from a variety of angles and identified two particular areas of weakness: overconfidence about the strength of the Tokuyama Factory's infrastructure, and an overly introverted stance within the Group.

This led to the realization that what we needed most was a change in attitude, in order to recapture our manufacturing competitiveness. To address this, we established a corporate vision to build a new foundation, driven by a new mission, aspirations, and values.

Recognizing and Further Refining Our Strengths

Tokuyama is a technology-oriented company, yet we have failed to fully grasp the true strengths of our technology and the aspects in which customers see us as superior to our competitors. We must capture these strengths and further refine them, so that we can further differentiate from our competitors and extend the advantages that we offer customers. To achieve that, our technical staff must engage directly with customers. It is extremely critical that we make the most of our Group strengths, and that each employee considers the value of his or her own work and take action.

Securing Growth in Three Priority Sectors

As a manufacturer, our job is to create value that is sought by customers. We will look to develop new technologies and products in fields adjacent to products that our customers are already buying.

We will leverage the strengths of our existing businesses and technologies, to secure growth in the adjacent priority sectors of information and communication technology (ICT) and healthcare. For ICT, we already supply a wide range of products, from polycrystalline silicon used to make wafers and developing solution for process chemistry, to isopropyl alcohol and thermal conductive materials used in final devices. We will engage in development to enable our key materials to be used in each process in ICT applications.

We will also secure growth in the healthcare and environment sectors by leveraging and connecting resources throughout the Tokuyama Group, in order to extend the line of products that we offer.

Stronger Corporate Governance

I am determined to strengthen our corporate governance by comprehensively pursuing our corporate mission. We will strive to make reasoned decisions based on thorough discussions and proper information, from a shared recognition of market, technology, financial, and other risks.

Approach to Responsible Care and CSR

The comprehensive pursuit of customer satisfaction will also realize corporate social responsibility (CSR) and Responsible Care, which are consistent with customer-oriented conduct. I expect each employee to comprehensively pursue customer satisfaction in accordance with our corporate vision, to realize CSR and Responsible Care in everything we do. We also must embrace the fact that safety is core to our business and continue to make it our highest priority.

Changing Attitudes and Expanding the Role of Women in the Workplace

In April 2016, Japan introduced new legislation to support the role of women in the workplace. While all of our female managers are currently concentrated in administrative areas, we want to see them in an expanded role and involved in other areas including manufacturing and sales. For this to happen, we will take it upon ourselves to change our attitudes, so that we can tap into the inner resolve, flexibility of thinking, and sensibilities that women bring.

Bringing Organizations and People Closer, Looking Further Outward

In May 2016, we transferred certain head office operations to the Tokuyama Factory in Shunan City, Yamaguchi Prefecture, in order to further unify our manufacturing, development, planning, and sales organizations. This will enable us to comprehensively pursue customer satisfaction and transform our mindset so that we can continue to evolve. Achieving our corporate vision will lead to changes that are visible to others. By bringing our organizations and people closer, we will become a more unified and outward-looking Tokuyama Group.

Harnessing the Potential of Chemistry to Meet Customer Needs and Create a Safer, More Comfortable Society

In the various sectors of ICT, Tokuyama supplies a wide variety of materials that enable innovation in customers' businesses, ranging from polycrystalline silicon used to make wafers and developing solution for process chemistry, to isopropyl alcohol and thermal conductive materials used in final devices. The Group also leverages its unique technologies and original products to reduce environmental impact, improve lives, and contribute to society.

Taking the Customer's Point of View

Tokuyama's mission is to play a useful role in its customers' businesses and contribute to the development of society by supplying soda ash, a primary industrial product that is indispensable to the development of Japanese industry.

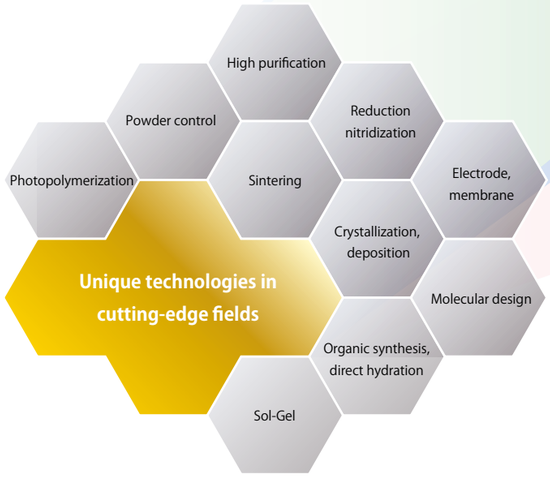
One of Tokuyama's mainstay products, caustic soda, is an important raw material for many products that are indispensable to daily life. The process of caustic soda manufacturing yields chlorine as a co-product and hydrogen as a by-product, and these play a supportive role in industry as the raw materials for chloride, polycrystalline silicon, and urethane, and, with further processing, as chlorinated substances and other derivatives. Hydrogen is also in the spotlight lately as a source of energy for a more sustainable society.

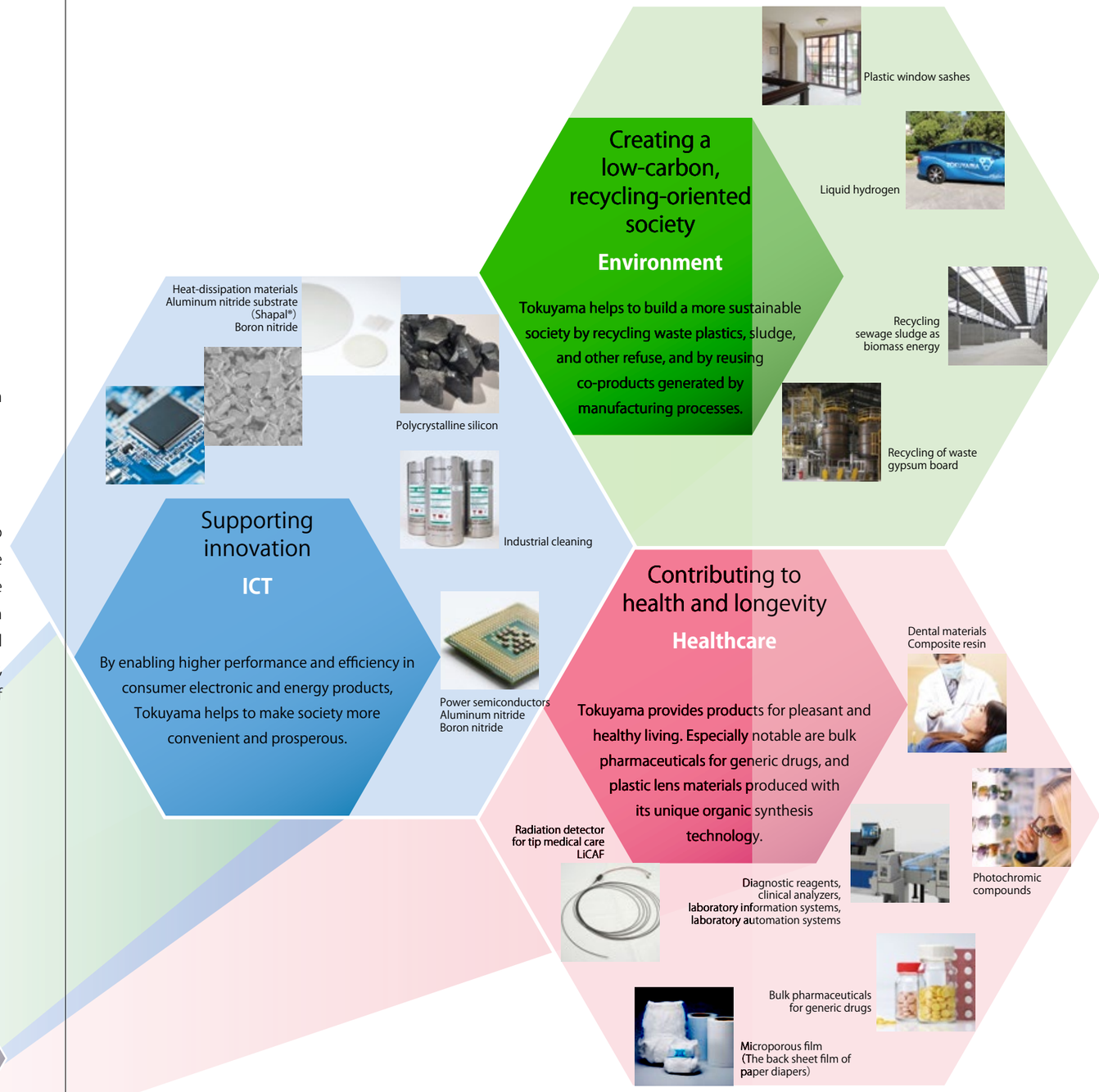
Reducing Environmental Impact

Ensuring safety and reducing environmental impact are among the many responsibilities that a chemical manufacturer is expected to fulfill. Ever since its founding, Tokuyama has actively sought to recycle waste. The Tokuyama Factory is composed of three separate plants. The Tokuyama Plant manufactures inorganic chemicals. The Higashi Plant manufactures organic chemicals and polycrystalline silicon. The Nanyo Plant manufactures cement. Together, these plants form a recycling-oriented manufacturing facility that relies on its technical prowess to achieve zero emissions in terms of both energy and materials. The most important key to this achievement is the Tokuyama Factory's in-house power generation equipment, which produces 550,000 kWh of electric power.

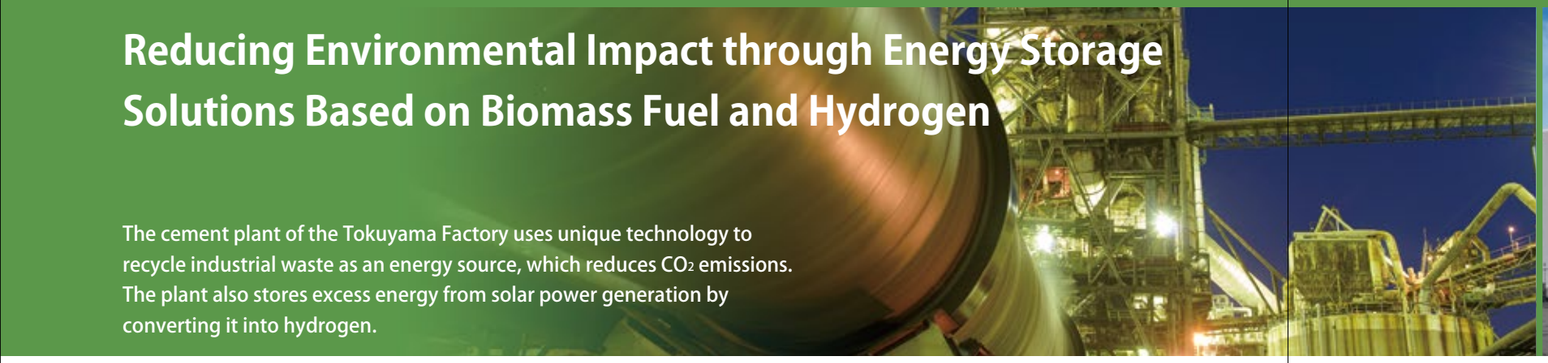
Solving Problems for Customers and Society

Outstanding original technologies and a unique ability to think and act from the customer's point of view constitute two of Tokuyama's special strengths. Moving forward, the Group intends to take full advantage of these strengths in the key sectors of ICT devices, healthcare, and environmental technologies. The Group will keep contributing to society, striving to remain essential to society and the choice of customers.





Reducing Environmental Impact through Energy Storage Solutions Based on Biomass Fuel and Hydrogen



The cement plant of the Tokuyama Factory uses unique technology to recycle industrial waste as an energy source, which reduces CO_2 emissions. The plant also stores excess energy from solar power generation by converting it into hydrogen.

Resource Recycling Business

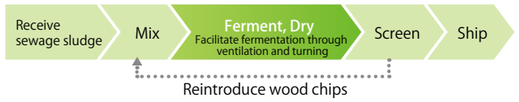
Recycling Sewage Sludge as Biomass Energy for Cement Production

Using Thermal Energy from Fermentation to Turn Sewage Sludge into Biomass Fuel

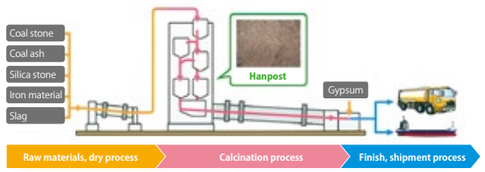
In October 2012, Tokuyama partnered with industrial waste company Nanbu Kaihatsu Co., Ltd. of Kagawa Prefecture to establish Morizukuri Corporation Co., Ltd. The joint venture has developed a process to ferment and dry sewage sludge to use as biomass fuel. Sewage sludge is drawing interest as a carbon neutral source of biomass energy, but a great deal of fossil fuel is used to dry sewage sludge, which is approximately 80% water.

To address this, Tokuyama and Nanbu Kaihatsu jointly developed Hanpost®, a unique technology to ferment and dry sewage sludge for biomass energy, using microbial activity. The thermal energy from fermentation efficiently dries sewage sludge without requiring the use of fossil fuels.

Hanpost® Process



Using Hanpost® as Biomass Fuel for Cement Manufacturing



Also see "The Nanyo Plant's Cement Production Recycling System" on page 27.

Voice))

President, Morizukuri Corporation Co., Ltd Shuji Hisatsugi

Reaching and Benefitting Communities across Japan

Tokuyama and Nanbu Kaihatsu have been jointly using sewage sludge as a raw material for cement for about 20 years. However, due to a construction slowdown in 2010, the cement plant of the Tokuyama Factory was forced to reduce production, meaning it could no longer take in sewage sludge. In response, the two companies began jointly exploring the potential to use sewage sludge for energy instead of as a raw material. Through a process of trial and error, the companies developed Hanpost®, sewage sludge dried using fermentative bacteria, for use as a biomass fuel.

There is recognition of the value of the technology for treating sewage sludge in cement manufacturing, and more visitors are coming to see our facilities. Moving forward, we will aim to increase our processing volumes to further reduce CO_2 emissions from transport, while creating more jobs to benefit the community. We will also aim to supply materials to coal-fired power plants and biomass power plants.

Significantly Reducing CO_2 Emissions

Hanpost® biomass fuel is used in place of coal to generate thermal energy for cement manufacturing. No fossil fuels are used to make Hanpost®, which has roughly one-third the calorific value of coal at around 2,300 kcal/kg-wet. Used in place of coal, Hanpost® reduces coal consumption and CO_2 emissions in cement manufacturing. Once the calorific value of Hanpost® is spent, the material is fully recyclable as a raw material for cement. Furthermore, Hanpost® is one-third the weight of sewage sludge, resulting in fewer CO_2 emissions from transport compared with sewage sludge.

Hanpost® has almost no foul odor and is sanitary, since *E. coli* and other bacteria are destroyed by the thermal energy from fermentation.

Company Outline

Company name:	Morizukuri Corporation Co., Ltd
Established:	October 30, 2012
Location:	279, Maeyama. Sanuki-shi, Kagawa
Capital:	¥10 million
President:	Shuji Hisatsugi
Processing capacity:	80t / day (24 hours)
Business Description:	Processing of sewage sludge by fermentation and drying for biomass energy

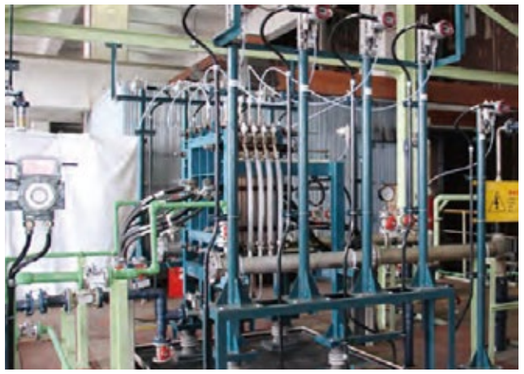
Demonstration of CO_2-Free Energy Source

Storing Excess Energy from Solar Power through Hydrogen Conversion

Leveraging Unique Core Technology to Realize an Alternative to Petroleum and Coal Energy

Since March 2016, Tokuyama has been operating demonstration facilities that convert excess energy from solar power into hydrogen for energy storage, through electrolysis of an alkaline solution. The process uses unique electrode and membrane technology developed by Tokuyama to generate caustic soda, chlorine, and hydrogen, by electrolysis of a saline solution using ion exchange membranes. Tokuyama will further refine this core technology, looking to develop a commercial system that efficiently converts energy into hydrogen.

The technology addresses the supply instability of solar power by converting solar energy into hydrogen for energy storage. By realizing a CO_2-free energy source to replace petroleum and coal, this technology addresses both energy security issues and environmental concerns.



Enhancing Customer Support to Provide Industrial Cleaners That Support Manufacturing Productivity and Quality

In the IC Chemicals business, Tokuyama is a global market share leader for high-purity chemicals used in electronics manufacturing. Group subsidiary Tokuyama METEL Corporation specializes in industrial cleaners and actively provides customers with environmental technologies to help develop new products and realize innovations.

Industrial Cleaner Business

Meeting Diverse Customer Needs with the Addition of Chlorine-Based, Fluorine-Based, and Semi-Aqueous Cleaners

Expanded Range of Cleaners for Electronic and Precision Components

Industrial cleaners are used in diverse sectors including the automotive, electrical equipment, electronics, precision machinery, ceramics, and resin industries. The range of cleaners includes chlorinated, aqueous, semi-aqueous, fluorinated, and hydrocarbonated cleaners. Manufacturers choose these cleaners based on requirements such as cleaning performance and cost in addition to environmental regulations.

Over the past four decades, Tokuyama has held a lead in chlorinated solvents that deliver superior cleaning performance and fast drying at an economical price, which have been the choice of many customers. The company spun off its industrial cleaners business in July 2015 by establishing Tokuyama METEL Corporation, and later that October the subsidiary absorbed the fluorinated, aqueous, and semi-aqueous cleaner business of ASAHI KASEI CHEMICALS CORPORATION to further expand its product lineup. With the acquisition, Tokuyama METEL supplies products for a broad range of cleaning applications from metal parts including screws and bolts, to components such as for electrical equipment and automobiles, and precision components including printed circuit boards. This has positioned Tokuyama METEL to provide solutions for the diverse needs of customers.

Working with Customers to Provide Solutions

Industrial cleaners are essential to manufacturing and greatly impact productivity and quality. However, expertise in the properties and applications of cleaners are in short supply among manufacturers, as cleaners do not tangibly remain in the final product. Tokuyama METEL employs salespeople and engineers with extensive experience, who work closely with customers to meet the exacting requirements of customers. This includes providing suggestions related to cleaning technologies and equipment.

Providing Suggestions to Enhance Safety and Reduce Environmental Impact for Customers

The head offices of Tokuyama METEL encompass a Cleaning Technology Center that engages in research and development. The purpose of the center is to facilitate the business of customers by increasing collaboration between sales and engineering, providing information about cleaning technologies, and addressing the environment, health, and safety. The center also invites customers for product tests and provides technical advice to help them choose the most appropriate cleaners.

The company has been implementing environment, health, and safety initiatives since 2008 and provides solutions that enhance safety and productivity through the center by suggesting ways for manufacturers to effectively collect and reuse cleaners. It also works with customers to develop and refine cleaning systems for safety and environmental performance. These efforts will position the company to develop new products that are safer and more environmentally friendly, to continue attracting customers across the globe.

Company Outline

Company name:	Tokuyama METEL Corporation
Established:	July 1, 2015
Location:	8th fl., Keihin Bldg., 1-1, Minami-watarida-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa
Capital:	¥10 million
President:	Hiroyasu Kai
Business Description:	Manufacture and sales of Industrial Cleaners

Voice))

President, Tokuyama METEL Corporation Hiroyasu Kai

Industrial Cleaners That Support Our Customer's Products

Tokuyama METEL Corporation was established as a company specialized in industrial cleaners. We develop products that deliver superior cleaning performance and cost performance with a lesser environmental impact. We supply a broad range of industrial cleaners and technical services, and we actively provide environmental technologies to customers. We are committed to supporting the manufacturing productivity and product quality of our customers, and we are working hard to help them develop new products and realize innovation.

Voice))

General Manager, Research & Development Department, Tokuyama METEL Corporation Shoji Matsumoto

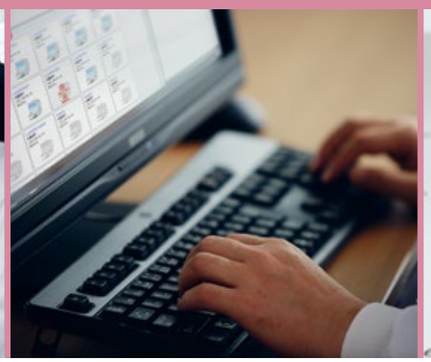
Supporting Manufacturing Behind the Scenes

Nowadays, it is extremely difficult to choose an optimum cleaners, as products increasingly segmented according to purpose, material properties, and required precision. Gone are the days when CFCs and ethane could be universally used for cleaning. Furthermore, there are fewer cleaning engineers among manufacturers, who increasingly depend on us for expertise.

As a company that specializes in cleaners, Tokuyama METEL will endeavor to meet the diverse cleaning needs of our customers, from a hardware perspective such as cleaning equipment and systems, and through expertise such as to reduce running costs and cleaner consumption management in cleaning equipment.

Leveraging Group Strengths for Better Medical Care and Healthcare

Tokuyama manufactures active pharmaceutical ingredients for generic drugs, and provides products and solutions for the medical and healthcare sectors, including dentistry materials. Tokuyama is also applying its original technologies to build a growing presence in clinical testing, where it helps medical institutions to deliver advanced medical treatment.



Clinical Testing Lab

Supporting Clinical Testing for Rapid Diagnosis and Treatment

Providing Total Solutions in Reagents and Clinical Testing Equipment and Systems

Clinical testing is playing an increasingly important role in medicine as doctors make more use of personalized medicine to treat diverse illnesses and conditions. A&T Corporation, part of the Tokuyama Group, supplies products and services used by medical institutions for clinical testing. These solutions are helping to improve the quality and safety of medical care, while also increasing work efficiency.

A&T engages in development, manufacturing, sales, and customer support in all the fields of chemicals, analyzers, computers, and lab-logistics (CACL). Its solutions are helping to alleviate the growing workload of clinical laboratory technicians. A&T's total solutions include consulting services to help medical institutions establish clinical testing operations that deliver efficient and rapid testing.

Revolutionizing Blood Coagulation Testing with Simple Analysis Systems

One of the emerging challenges in the field of clinical testing is the need for emergency testing in cases of acute illness or surgery. Emergency testing must be performed on the spot, regardless of time or day, and no matter how few samples are being tested. When patients are given anticoagulants for surgery, there is a need to monitor blood coagulation. To meet this need, A&T began developing reagents and devices for testing blood coagulation in 1989. Since then, it has created many successful products.

A&T's latest Coagulation Analyzer CG02N takes simplified measurements using a dry reagent to provide five essential items of blood coagulation needed for analysis and monitoring in medical settings. It is the only simple analysis system of its kind in the world. This compact and lightweight unit enables smaller hospitals to perform blood coagulation testing and help more people. A&T supplied the analyzers to areas affected by the Great East Japan Earthquake and Kumamoto earthquakes, where they were used to diagnose and treat many individuals.

A&T also offers the Coagulation Analyzer CG02NV for Animals which is used at veterinary hospitals across Japan. These devices, the first of their kind in Japan, are helping vets to cope with the growing prevalence of obesity, diabetes, cancer, and surgical procedures among pet dogs and cats.

The Coagulation Analyzer CG02N delivers quick test results anywhere and anytime. No special training is needed; simply insert a reagent test card and add a drop of blood. There is no need to prepare reagents, and either whole blood or plasma can be analyzed.

Offering Solutions for Preventative Testing

Prevention of lifestyle-related diseases—such as high blood pressure, diabetes, heart disease, and stroke—has become a major medical issue amid aging demographics. With the need to shift focus from treatment to prevention, A&T is doing its part to support preventative care by supplying solutions tailored to the needs of medical practitioners and the growing health consciousness of people today.

Company Outline

Company name:	A&T Corporation
Established:	May 25, 1978
Location:	Yokohama Plaza Building, 2-6 Kinko-cho, Kanagawa-ku, Yokohama-shi, Kanagawa
Capital:	¥500 million 7,761
President:	Shigetaka Misaka
Business Description:	Manufacturing, sales, and support for clinical testing equipment and systems, and reagents
Securities code:	6722, JASDAQ Standard (TSE)

Voice))) Director, R&D Division Manager, A&T Corporation Yoshimichi Yoshimura, Ph.D.

Improving Medical Services with CACL Solutions

The Japanese government is promoting the application of IT in the medical field with the goal at 2020 of seeing electronic medical record systems adopted by 90% of hospitals with 400 beds or more. A&T provides total solutions ranging from clinical testing reagents and devices to laboratory information and automation systems. Our solutions are bringing the benefits of IT to the medical sector and helping to deliver rapid diagnosis and treatment for patients.

Our latest systems help to raise the quality of treatment by making testing data equally available to experienced physicians through to interns and nurses. Automated testing also ensures better safety by eliminating user error and raising work efficiency. In addition, A&T provides system support to help institutions acquire ISO 15189 certification for medical laboratories, which is an increasingly prevalent standard. We are working with medical institutions in all these diverse ways to improve medical services.

Voice))) Unit Leader, R&D Unit, A&T Corporation Masayoshi Kikuchi

Developing a Blood Coagulation Analysis System for 14 Years

Blood coagulation tests can directly impact human life by helping to measure the effects of anticoagulants used on patients. There is strong demand for these tests to be administered outside of clinical laboratories, creating the need to develop an accurate system that is safe and easy to use.

A&T developed an entirely original dry reagent technology for the Coagulation Analyzer CG02N. It eliminates the need to first prepare the reagent with water, instead using the moisture from the sample to wet the freeze-dried reagent contained on the card. One of the difficult technical challenges we faced was to ensure the uniform solubility of the cards. We also had to develop a freeze-dried protectant to improve the impact resistance, which took a lot of trial and error. Moving forward, we are aiming to develop an equally simple testing system for fibrinolysis, a process which prevents formation of blood clots.

Pursuing Corporate Social Responsibility by Practicing Socially Responsive Management

Tokuyama practices corporate social responsibility in management, leveraging the chemical technology it has amassed to create and keep providing new value in order to bring joy to people and contribute to social progress.

Basic Philosophy of Tokuyama's CSR-Oriented Management

Tokuyama approaches its CSR activities in accordance with a basic philosophy of continuously working with society to build a sustainable future and practicing corporate conduct that is evaluated highly by its various stakeholders, namely, shareholders, customers, employees, trading partners, communities and society as a whole.

Tokuyama has created thise symbol for CSR promotion. Depicting a sunflower, the symbol is intended to convey the Company's active, healthy and honest stance toward CSR. Under this symbol, the Tokuyama Group will not only pursue compliance and efficiency in its business operations, but will also work to develop into a vibrant, sound corporate entity that is socially and environmentally beneficial and is trusted by all stakeholders.

Tokuyama Group's Five Conscience Clauses

Our behavior shall:

① Comply with laws, regulations and internal rules
② Conform to the Tokuyama Group Code of Conduct
③ Justify the trust of customers and trading partners
④ Earn the respect of society and general consumers
⑤ Maintain standards that can be spoken of with pride in front of family members and coworkers

Tokuyama's Approach to CSR

Tokuyama works to build positive relations with stakeholders in accordance with its mandate to practice corporate social responsibility (CSR). Under Japan's Corporate Governance Code, companies are directed to "achieve sustainable growth and increase corporate value over the mid- to long-term." Tokuyama believes that achieving these aims will help to ensure its social responsibilities are met. It also implements internal controls to anchor its CSR initiatives, focusing on risk management and compliance.

As a chemical manufacturer, Tokuyama gives utmost priority to exercising Responsible Care through the consistent operation and enhancement of management systems for safety, the environment, and quality.

To achieve sustainable growth while earning public trust and being the consistent choice of customers, the Tokuyama Group ensures that all employees and officers understand and adhere to the Group Code of Conduct and Five Conscience Clauses. Group companies also formulate their own action guidelines to guide their relations with various stakeholders.

Corporate Governance

Tokuyama earns the trust and cooperation of stakeholders by creating and continuously providing new value, which in turn helps to ensure sustainable growth and increase corporate value over the mid- to long-term. Tokuyama has made it a management priority to constantly enhance corporate governance. In keeping with the Corporate Governance Code, Tokuyama respects the rights and equality of stakeholders and is strengthening the monitoring functions and independence of the Board of Directors. At the same time, Tokuyama is encouraging faster decision making and clarifying the responsibilities for business execution, while endeavoring to practice suitable information disclosure, achieve transparency, and engage in constructive dialogue with shareholders.

≫ Corporate Governance Framework

Board of Directors

Tokuyama's Board of Directors deliberates and makes decisions on important matters concerning the execution of the Company's business while supervising business operations.The Company adopted an executive officer system in April 2011 and appointed four external directors for the purpose of strengthening the supervisory function of the Board of Directors.

Audit & Supervisory Board

Tokuyama's Audit & Supervisory Board reports on, discusses, and decides on important matters related to auditing. Its members oversee the execution of duties by the directors.

Human Resources Committee

Comprised of representative directors and external directors, the Human Resources Committee holds discussions on such matters as remuneration for directors and executive officers and the selection of candidates for director and executive officer positions.

Executive Committee and Strategy Committee

The Executive Committee, comprised of executive officers selected by the president, meets twice a month to discuss and finalize key strategies adopted by the Board of Directors. The Strategy Committee discusses important matters such as the pros and cons of pursuing certain businesses and the manner in which they should be executed, to assist the president in determining the direction of business objectives.

Director Responsible for the Corporate Social Responsibility Division

Akihiro Hamada

Practicing Transparency and Earning Public Trust

Tokuyama has outlined a corporate vision to realize a new foundation, and a mission to continue creating chemistry-driven value that enhances people's lives. In conducting our business, we embrace the conviction that customer satisfaction is the source of profits. This mission and the values we embrace are at the heart of our CSR initiatives.

Foundationally, we have established internal controls and steadily implement compliance and risk management, while working to further strengthen Tokuyama's corporate governance.

In addition, safety is our top priority, and we work very hard to ensure safe operations. Building on many years of Responsible Care activities, we practice environmentally friendly management, striving to reduce energy consumption and conducting a recycling business with our cement factory.

We are making changes to foster a vibrant corporate culture that encourages independent thinking and rapid business execution among our employees. These changes will reshape and energize the Tokuyama Group, making it a more transparent company so that we can earn public trust and continue creating chemistry-driven value that enhances people's lives.

CSR Promotion Council

Chaired by the president, the membership of the CSR Promotion Council is composed of all executive officers working within Japan. The Council sets CSR-related policies and goals, and deliberates on important matters concerning internal control systems, which constitute the basis for CSR activities.

Risk Management and Compliance Committee

Operating under the CSR Promotion Council, the Risk Management and Compliance Committee is chaired by the director responsible for the Corporate Social Responsibility Division. The committee takes the initiative in promoting risk management and compliance, which are both core elements of internal control systems.

Seven Committees

Tokuyama operates committees focused on risk management and compliance in seven critical and specialized areas, separately from the Risk Management and Compliance Committee. The committees operate under the CSR Promotion Council, overseeing the following areas: financial reporting, fair trade and competition, international trade, information security, environment, safety, and product safety and quality assurance.

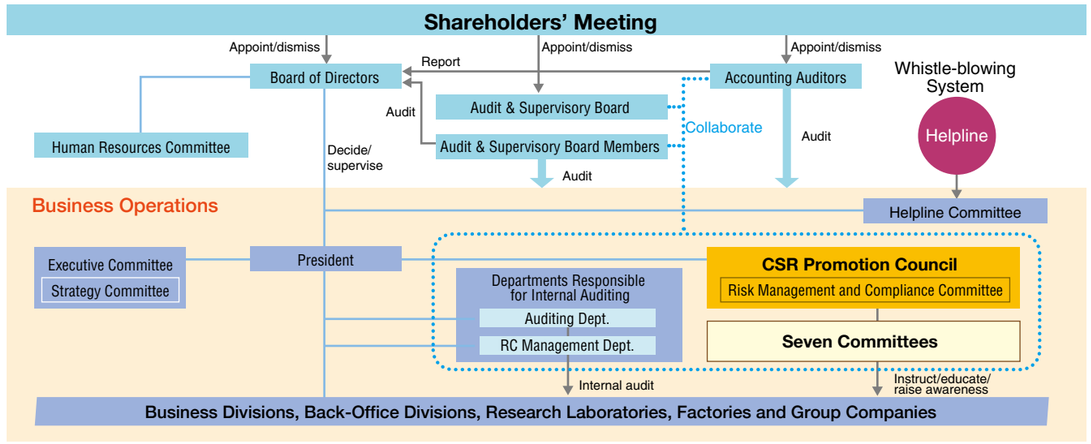
Helpline Committee

The Helpline Committee was set up as a whistleblowing channel to enable internal reporting of legally questionable actions and behavior.

Departments Responsible for Internal Auditing

Tokuyama has established the Auditing Department and the Responsible Care Management Department and tasked them with responsibility for internal auditing.

Corporate Governance Structure



Protecting the Environment, Ensuring Safety, and Promoting Good Health for People and Local Communities

Responsible Care activities are an essential component of Tokuyama's corporate social responsibility. Tokuyama has put in place company-wide infrastructure for promoting Responsible Care, and is incorporating this initiative in each of its management systems as it strives to continuously improve its environmental, safety, and quality systems.

What Is Responsible Care?

Responsible Care is a voluntary management initiative through which companies that manufacture and handle chemical substances undertake measures for protecting the environment and ensuring the safety and health of society. It covers all operations, from the development of chemical substances to their manufacturing, distribution, usage, final consumption and disposal. Responsible Care also encourages the public disclosure of these activities along with dialogue and communication with members of society. The Responsible Care initiative originated in Canada in 1985, and is currently used in 52 countries around the world. In Japan, a Responsible Care Committee has been set up under the Japan Chemical Industry Association (JCIA). As of April 1, 2016, the committee had 109 corporate members. As one of the original members of the organization, Tokuyama has been actively implementing Responsible Care activities since the committee's founding in 1995.

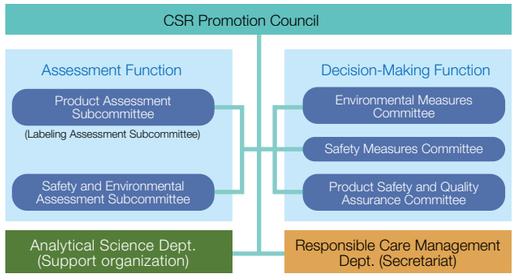
Framework for Promoting Responsible Care

Tokuyama has established a number of organizations that pursue concrete initiatives under its CSR Promotion Council, which is chaired by the company president. Specifically, it set up the Environmental Measures Committee, Safety Measures Committee, and Product Safety and Quality Assurance Committee as decision-making bodies, and the Product Assessment Subcommittee and several other subcommittees as assessment organizations.

Responsible Care Evaluation and Management System

Working on the basis of its medium-term plan for Responsible Care activities, Tokuyama sets policies and goals for each fiscal year. Individual departments then create and carry out specific plans based on these policies and goals. The results of initiatives are evaluated at the end of each fiscal year and incorporated in plans for the following fiscal year. Tokuyama is currently carrying out Responsible Care activities under a three-year plan launched at the beginning of fiscal 2015.

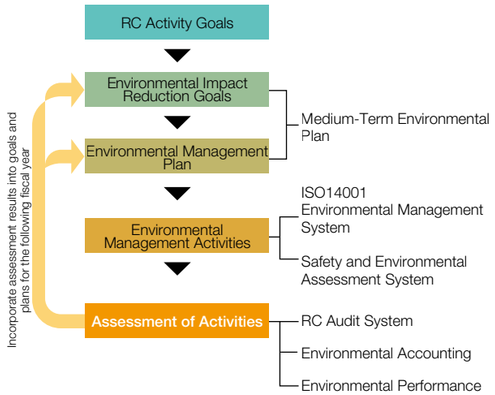
Responsible Care Promotion Structure



This laboratory carries out environmental measurements, working environment measurements and ultra-trace analysis of substances under regulation and chemical pollutants

This department promotes RC activities throughout the Group, covering the areas of the environment, safety and quality.

RC Activity Evaluation and Management System (Environmental Preservation)



Operation of Management Systems

ISO 14001 Environmental Management System

The Company's Tokuyama Factory and Kashima Factory have acquired ISO 14001 certification. Each factory sets an environmental policy and goals in line with Tokuyama's company-wide environmental policy, and undertakes related activities intended to alleviate environmental impact, conserve energy, reduce waste, and recycle resources. Tokuyama's head office, branch offices and research laboratories also set policies and goals, and pursue such activities as energy conservation, resource recycling, and waste reduction.

ISO 9001 Quality Management System

Tokuyama has acquired ISO 9001 certification for its quality management system, which has been operating since fiscal 2002 as a company-wide system encompassing sales, development and all other operations.

Occupational Health and Safety Management Systems

In accordance with the New Occupational Health and Safety Guidelines issued by JCIA, Tokuyama operates occupational health and safety management systems at each of its workplaces. In fiscal 2005, the Tokuyama Factory expanded its safety management system by incorporating a broader range of safety-related activities.

Basic Philosophy of Responsible Care

Basic Policy

As a member of the Japan Responsible Care Committee, 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 distribution, 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 promote Environmental Management, a management policy that emphasizes the environment, in all of our business activities, including development, manufacturing and sales.

Action Objectives

1. Promote environmental protection

- Implement an ISO 14001-based Environmental Management System and reduce environmental impact

2. Observe the laws and regulations

- Observe international rules, domestic laws and regulations and industrial standards
- Thoroughly implement export management rules on materials under control

3. Promote energy conservation and curb global warming

- Achieve top-class unit energy consumption in the industry for each product

4. Promote resource recycling and work toward reduction and the proper management of waste materials

- Promote the material recycling and thermal recycling of resources
- Work toward achieving a paperless office

5. Promote process safety, disaster prevention and occupational health and safety

- Aim for zero accidents and disasters based on the principles of self-responsibility and the self-management of safety
- Achieve a comfortable working environment and protect people's safety and health

6. Ensure strict product safety standards

- Offer environmentally friendly products that can be used with safety
- Provide proper information on how to use products and what precautions to take

7. Deepen the relationship of trust with society

- Publicly disclose information on the Company's activities concerning environmental protection, process safety and disaster prevention, occupational health and safety, and chemical product safety
- Actively engage in dialogue with the local communities

Assessment Systems

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

Safety and Environmental Assessments

Tokuyama conducts safety and environmental assessments before newly installing, expanding or modifying any of its facilities. The Company checks the safety design of equipment, the safety level of materials to be handled, compliance with laws and regulations, impact on the environment, and other factors. The assessments are conducted at the three separate stages of basic plans, designs, and preliminary operations.

Product and Labelling Assessments

Tokuyama confirms product safety at each stage of operations, from the initial research and development stage through to market release. The assessments confirm compliance with legal requirements and evaluate the level of various risks, including the safety of chemical substances used in the product, their potential impact on the environment, and their effect on human health. The Company also checks all labeling in documents such as product catalogs, safe handling manuals, and safety data sheets* in order to ensure that instructions and warnings are complete and accurate.

＊A safety data sheet is a document for recording information related to the risks and toxicity of chemical substances. It is prepared to facilitate the safe handling of such substances, and includes the names of the substances, safety measures, and procedures for responding to emergencies.

Safety and Environmental Audits

Tokuyama conducts safety and environmental audits on an annual basis in order to verify the applicability of its environmental conservation management and accident and disaster-prevention measures. The Tokuyama Factory renewed its accreditation as a safety inspector for high-pressure gases, in 2015 receiving governmental review (conducted once every five years). The review assessed the operating status of the plant's high-pressure gas safety management system and the proper functioning of the inspection management organization. The assessment results were reported and distributed to the relevant departments and to the president, and are being applied to make continuous improvements.

Audits by Third Parties

Tokuyama undergoes ISO 9001 and ISO 14001 examinations. In April 2016, the examination for renewal of ISO 9001 certification identified four issues, and the Company is dealing with each accordingly. Likewise, examinations for renewal of ISO 14001 certifications were carried out at the Tokuyama Factory in October 2015 and the Kashima Factory in December 2015. Five issues were identified, and the factories are now working on remedial measures.

Internal Audits

In accordance with its occupational health and safety management system as well as ISO 9001 and ISO 14001 standards, Tokuyama periodically conducts internal audits covering the progress of its action plans and the status of system operations. If problems are uncovered, they are reported, relevant personnel are notified, and remedial measures are taken.

Responsible Care Implementation Infrastructure and Management System Operations

An auditing system verifies that each of Tokuyama's workplaces carries out its respective activities in an appropriate manner in accordance with company-wide policies.

Education and Training

Tokuyama provides all employees with general training on Responsible Care within its multi-tier group educational programs. Personnel involved in environmental management, safety management, occupational health and safety, and quality management are provided practical education in each of these respective management activities.

Safety and environmental audit at Kashima Factory

Floor patrols

Priority Tasks and Results of Responsible Care Activities in Fiscal 2015

Degree of target achievement: Achieved (A) Not achieved (B)

Category	Priority tasks	Results	Degree of target achievement
Management	Review of Responsible Care management by top managers	● Held meetings on promoting CSR	A
		● Conducted safety, environment, and quality audits	A
Environmental Conservation	● Comply with legal requirements and other regulations	● Strictly complied with legal requirements	A
	● Achieve zero environmental accidents	● No environmental accidents	A
	● Achieve targets for reducing environmental impact	● Reduced emissions of substances that affect the environment	
	Reduce emissions of environmentally hazardous substances	Three departments fell short of targets	B
		● Promoted energy conservation	
	Achieve departmental management targets	Reduced per-unit energy consumption	A
	Targets achieved by all departments	Maintained effective utilization of waste rate of 94%	A
	Conserve energy and electricity	● Maintained landfill to total waste rate of 0.1%	A
	Maintain "zero emissions" of waste	● Continued to improve environmental management systems	
	● Continue making improvements to environmental management systems	Reviewed/simplified documents and systems	A
		Internal audits and third-party audits carried out	A
Safety and Accident Prevention Occupational Health and Safety	● Ensure no accidents or disasters occur	● Accidents: 2 cases	B
	● Enhance safety management systems	● Employees: 1 fatal accident, 2 accidents not requiring work absence	B
	● Promote risk management and hazard management	Contractors: 1 accident not requiring work absence	B
	● Promote physical and mental health	● Enhanced safety management systems	
		Discussed risk assessments for irregular operations	A
		Strengthened near-miss activities	A
		Utilized/shared safety-related information	A
		● Promoted risk and hazard management	
		Conducted various kinds of drills	A
		Tested a BCP based on a major earthquake in the Tokyo metropolitan area	A
		Tokuyama Factory: Discussed emergency plans for a potential major earthquake in the Nankai Trough	A
		● Promoted physical and mental health	
		Encouraged health awareness among employees	B
		Implemented health management focusing on addressing mental health issues and lifestyle diseases	A
Chemical Product Safety	● Ensure the safety of products	● Conducted inspections of products and labeling	A
		● Revised safety data sheets	A
		● Actively participated in the JIPS*	A
		● Addressed regulations on chemicals in countries outside Japan	A
Build Relations of Trust with Local Communities and Society	● Participate in community events	● Participated in community volunteer activities	A
	● Establish a good reputation in society	● Held dialogues with the community on Responsible Care	A
		● Held factory tours	A
Promote Responsible Care at Group Companies	● Expand the scope of Responsible Care activities	● Conducted safety, environment, and quality audits	A
		● Distributed information related to Responsible Care	
		Provided monthly information via an online newsletter	A

＊JIPS：The Japan Initiative of Product Stewardship is an initiative spearheaded by the Japan Chemical Industry Association with the aim of facilitating the independent management of chemicals. Its members collect and analyze information on the hazardous properties of chemical substances and products in order to carry out risk assessments incorporating data on their usage and applications, comparing levels of exposure and safety. The risk assessment results provide a basis for proper chemical substance management aimed at ensuring workers' occupational safety, protecting consumers, and reducing environmental impact. The outcomes of such management activities are then disclosed to the general public and suppliers across the supply chain.

Accident Prevention and Occupational Health and Safety

Forging Strong Ties with Local Communities while Building a Positive, Safe, Accident-Free Workplace

Recognizing that safety is the basis for its business activities, Tokuyama practices safety as the first step to maintaining good relations with the communities in which it operates. Based on this approach, the Company carries out stringent accident prevention measures and occupational health and safety initiatives in its efforts to create a positive and safe work environment that is free of accidents.

Tokuyama's Commitment to Safety and Accident Prevention

Comprehensive Safety and Accident-Prevention Measures

Tokuyama has adopted three principles for ensuring safety: fulfill the obligations of a good corporate citizen, give safety priority over all business activities, and ensure that everyone is aware of their responsibilities and acts accordingly. Based on these basic safety principles, the Company carries out exhaustive measures for ensuring safety in manufacturing activities and at its facilities. Specifically, worksites conduct safety patrol operations and *kiken yochi* hazard prediction activities, practice the 5S principles, and use a point-and-call method for affirming onsite conditions. The Company is also working to improve its safety management system in order to prevent problems and accidents.

President Hiroshi Yokota issues instructions as the head of the crisis response office during the drill.

BCP Initial Response and Disaster Drills

The Tokyo Head Office conducted an initial response drill for the corporate business continuity plan (BCP) under the scenario of a major earthquake in the Nankai Trough, involving the Nagoya Branch and other business locations in western Japan. The Tokuyama Factory is establishing workplace standards and preparing disaster preparedness maps as part of its initiatives. Tokuyama has also carried out various training activities. These include disaster drills for pipe leaks and fires caused by an earthquake, emergency drills at individual company divisions, joint drills involving affiliated companies and contractors, and workplace safety competitions.

Working to Maintain Workplace Safety and Ensure No Accidents

In fiscal 2015, two facility accidents occurred at the Tokuyama Factory, while there were no accidents at the Kashima Factory and Tsukuba Research Laboratory for the fourth and eighteenth consecutive years, respectively. One occupational accident resulting in an employee fatality occurred at the Tokuyama Factory, which also recorded two accidents not requiring work absence. There was one accident at the Tsukuba Research Laboratory that did not require work absence. Looking ahead, Tokuyama will continue making steadfast efforts to prevent accidents or disasters from happening at its worksites.

Fiscal 2016 Company-Wide Safety Management Policy

Tokuyama operates a safety management policy in accordance with the safety mandate outlined in its Basic Approach to Safety and Three Safety Principles, and actively implements safety initiatives as a good corporate citizen.

- Implement safety initiatives involving all employees, under the leadership of upper management.
- Comply with laws, regulations, and internal rules.
- Foster and enhance a culture of safety, for the safety of people, facilities, and the public.
- Create comfortable workplaces to ensure the mental and physical health of the people who work there.

Each worksite actively conducts safety management activities that reflect the key action items of the current fiscal year in order to achieve targets.

Policy Objectives

■ No compliance violations ■ No accidents or disasters
■ Reduce the rate of work absences

Key Action Items

Improve safety management
Conduct production floor patrols by upper management, prepare and improve documentation for standards, improve change management, comprehensively review the framework for safety education and training

Identify sources of risks and resolve
Conduct risk assessments for irregular operations, respond to risk assessments for chemical substances and implement improvements, conduct hazard prediction activities

Make progress in risk management and hazard management
Prepare for response to a potential major earthquake in the Nankai Trough

Promote facilities management
Promote facilities inspections, expand efforts to identify facilities risks

Promote physical and mental health
Promote Smart Life Program

Tokuyama's Commitment to Occupational Health and Safety

Improving Safety Management Systems

All of Tokuyama's worksites conduct risk assessments covering operations, equipment, and processes, and continuously implement and make improvements in order to completely eliminate potential risks. In fiscal 2014, the Company improved safety management systems to ensure that every phase, from planning to result, is fully managed. The Company also strengthened its reporting on near-miss accidents and incorporated identified issues in its new risk assessments, and is now addressing these issues. In light of serious accidents at other companies' chemical plants in recent years, Tokuyama has begun revising its risk assessment methods to take into consideration non-routine tasks (including unusual situations), since most of the recent explosions happened during irregular operations, such as facility maintenance work or emergency shutdowns and startups.

Helping Contractors Promote Health and Safety

Tokuyama and its contractors carry out the following initiatives to promote health and safety: (1) joint safety meetings for safety education and information sharing on situations on the production floor; (2) safety patrols to ensure safe construction work and to improve unsafe situations; (3) supervisory skills training, and hazard simulation training to improve risk handling techniques; and (4) checking of operating procedures, and implementation of *kiken yochi* hazard prediction activities.

Promoting Sound Physical and Mental Health

At worksites where harmful substances are handled, Tokuyama ensures that local exhaust ventilation is kept in proper working order, and has maintained its Working Environment Control Class I* certification.

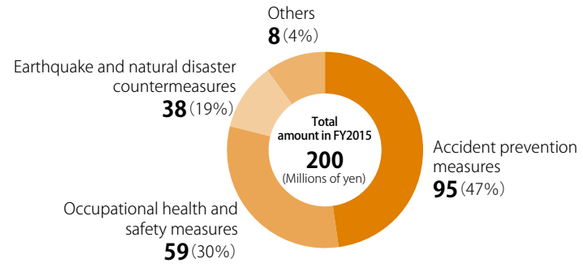
To raise health awareness among employees, Tokuyama has its employees take part in a monthly Smart Life Program activity, which involves the filling out of a health improvement self-evaluation. In addition, Tokuyama provides its employees with one-on-one health counseling that incorporates the results of medical checkups.

As for mental health, the Company carries out Web-based diagnostic surveys of work-related stress for all employees, and provides support to employees who appear to need further attention.

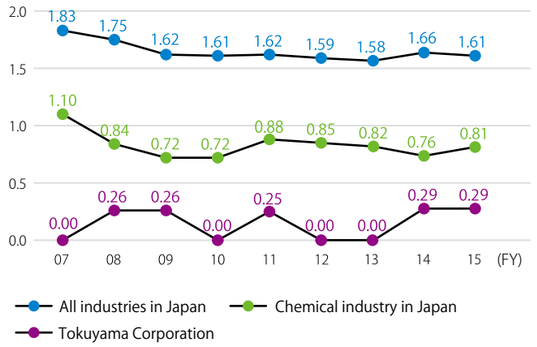
General disaster preparedness drill at the beginning of year

＊Control Class I: At almost all worksites (95% or more), the concentration of harmful airborne substances does not exceed the control concentration.

Expenditures for Accident Prevention and Occupational Health and Safety

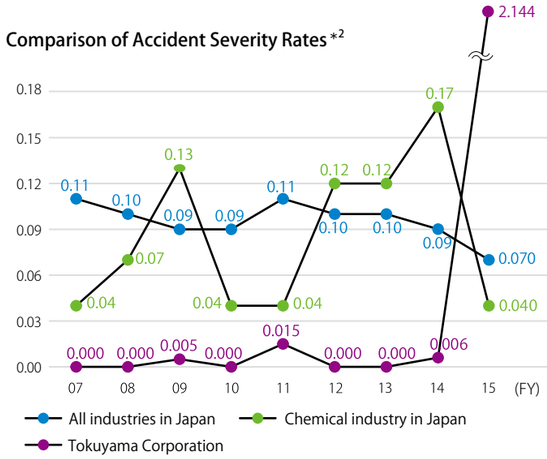


Comparison of Accident Frequency Rates ＊1



＊1 As an indicator of the frequency of industrial accidents, the accident frequency rate is calculated as the number of workers forced to miss work due to an industrial accident per one million cumulative working hours.

Comparison of Accident Severity Rates ＊2



＊2 As an indicator of the magnitude of industrial accidents that have occurred, the accident severity rate is calculated as the number of lost work days due to industrial accidents per 1,000 cumulative working hours.

Working with Employees

Pursuing Diversity, with a Special Focus on Opportunities for Women

Building a workplace where women can devote themselves with passion to their work and make full use of their abilities has been identified by Tokuyama as the core of its effort to promote diversity. Tokuyama is convinced that creating more opportunities for women will increase its corporate value.

Female operators are a big presence in the central control room at Tokuyama Malaysia Sdn. Bhd.

＊Diversity & Inclusion Management (DIM): Tokuyama seeks to create an environment where all employees can fully utilize their talents and achieve growth, which in turn will make the organization as a whole more vital and creative.

New Action Plan to Promote Opportunities for Women

Responding to Japan's April 2016 legislation to support the role of women in the workplace, Tokuyama adopted an action plan to promote opportunities for women. The action plan sets out four goals to be met by fiscal 2020, and various measures are now being implemented in pursuit of these goals.

To achieve goal #1 of the plan, Tokuyama is preparing to launch a Welcome Back System (in which employees who have left the workforce can register to come back) in 2016, while also improving its approach to the hiring of female students. For goal #2, the Group will offer a variety of career advancement courses for all employees without restrictions, including courses on communication skills, logical thinking, and other pertinent topics. In order to achieve goal #3, Tokuyama intends to offer courses focusing on leadership and management skills. And finally, for goal #4, Tokuyama will use a job rotation system in an active effort to place women in jobs for which they have a special aptitude or an expressed interest, including sales and production floor positions where women have traditionally been few in number.

Female engineer at a cement plant gives a briefing on raw material samples.

Breaking Down Barriers to Women Created by "Old Boy" Networks

Manager, Human Resources Group Naoki Fujiwara

To increase opportunities for women, we must change the mindsets of both female and male employees and supervisors across the organization. That's why Tokuyama is preparing a diversity and inclusion management (DIM) training program designed to remake workplace attitudes. Tailored for women, this program will also be attended by male supervisors. Program participants will draw each other's attention to issues in an effort to transform mindsets. The idea is to foster personnel with a "self-starter" attitude, who will then serve as role models for younger employees. Simply complying with the new legislation is not our end goal; we aim to increase corporate value.

Tokuyama Corporation Action Plan to Promote Opportunities for Women

Duration: April 1, 2016–March 31, 2020

Goal #1

Ensure that women account for no less than 20% of all persons with at least a university undergraduate degree who are hired for career-track positions.
(3-year moving average)

Goal #2

Ensure that women account by 2020 for no less than 6% of all assistant managers.

Goal #3

Ensure that women account by 2020 for no less than 2% of all managers.

Goal #4

Ensure that women by 2020 hold at least 10 sales positions and 20 positions in manufacturing departments.

Supporting Work-Life Balance

Tokuyama is working hard to help employees achieve a better work-life balance. In addition to generous childcare leave and family care leave plans that offer far more than what is legally required, the Company also has systems in place to make it easier for employees to offer help to each other.

Help for Hard-Pressed Mothers

R&D Group for Bulk Pharmaceuticals for Generic Drugs
Yoshimi Hironaka

I lead a group of working mothers, mothers-to-be, and co-workers on childcare leave who meet to discuss problems and trade information. This group's activities take place mainly on the company's intranet-based "Mama Net" and at luncheons. We also do a wide range of other activities—including seminars and information exchanges both within and outside the company—to create an ever-widening circle of mutual support.

Community Service Activities

Working with Local Communities to Support Growing Children

In addition to after-school care and other new undertakings, Tokuyama engages in dialogue with local communities to gain a better understanding of activities to promote security and disaster preparedness as well as environmental preservation.

ACS Kids (children at study)

After-School Care Program at Shunan Swimming Club

The Tokuyama Group's Shunan Swimming Club operates a swimming and fitness club that makes use of exhaust heat from the Tokuyama Factory. The Shunan Swimming Club opened ACS Kids in April 2016 as the first private-sector after-school care facility for children in Yamaguchi Prefecture. ACS Kids, which is open until 7:00 p.m.,* offers a place where 7–10 year olds can go after school on weekdays. Children have fun at ACS Kids as they expand their frontiers through participation in a variety of programs.

* ACS Kids is open Monday through Friday (except holidays) and also during spring, summer, and winter breaks.

Shunan Swimming Club homepage

Implementing Environmental Management to Reduce Environmental Impact

For Tokuyama, the pursuit of proactive initiatives to protect the earth's environment is an important part of its corporate social responsibilities. Accordingly, the Company practices environmental management that takes into account the natural environment in all business activities.

Performance in Fiscal 2015

Flow of Materials in Business Activities

Tokuyama works to accurately determine the input and output of materials for production, and regularly sets new targets aimed at reducing environmental impact. In fiscal 2015, Tokuyama achieved its waste recycling and zero emissions targets.

Regarding performance data for fiscal 2015 and beyond, Tokuyama has set a separate numerical management target for each department to maintain the current low-impact situation.

Environmental Accounting

Tokuyama has been carrying out environmental accounting since fiscal 2000 in order to accurately determine and analyze the investment amounts and costs associated with its environmental conservation activities, thereby providing a sound basis for making environmental investments.

Environmental Costs

Of Tokuyama's total environmental investment in fiscal 2015, 56% was pollution control, followed by 29% intended for resource recycling, and 11% for environment protection. Meanwhile, among environmental costs in fiscal 2015, 69% of the total was generated by pollution control, 17% by resource recycling, and 7% by global environmental conservation. Major capital investment projects in fiscal 2015 included upgrading the internal mechanisms of an electrostatic precipitator and making equipment modifications to change the fuel source for EDC cracking furnace used in the production of vinyl chloride monomer (VCM).

Economic Benefits of Environmental Management

Economic benefits are determined by calculating only monetary gains on the reduction of energy consumption, the sale of valuable waste, the reduction in waste disposal costs through waste recycling, and the reduction in raw material and fuel costs through waste recycling. In fiscal 2015 the economic benefits were approximately ¥1.5 billion, up ¥4.5 million year on year.

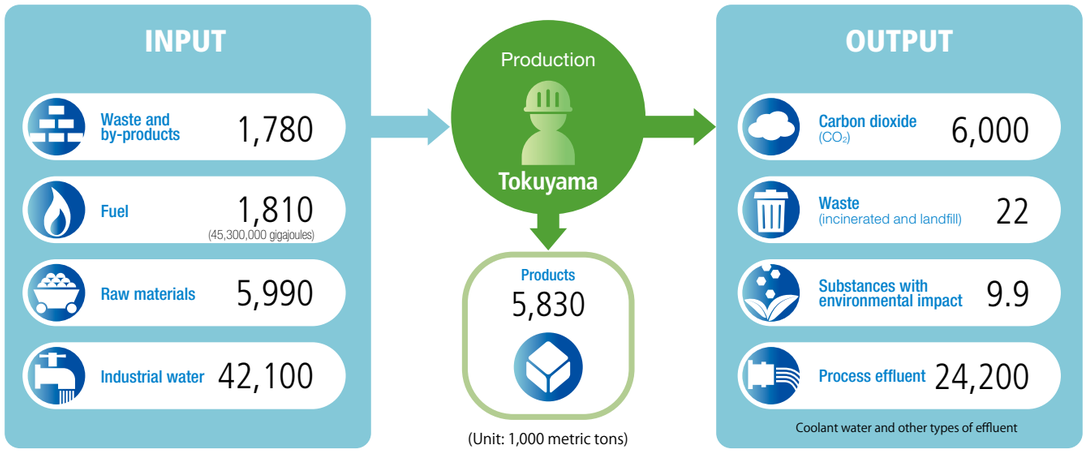
Measures to Help Combat Global Warming

Tokuyama participates in Keidanren's Voluntary Action Plan on the Environment, as a member of one of the industries covered by the Action Plan. It is via this Action Plan that Tokuyama is working to achieve its 2020 emissions reduction target. Tokuyama is making steady progress in conserving energy throughout its business activities, and supporting efforts by employees to save energy at home.

Promoting Energy Conservation

Tokuyama consumes a vast amount of energy to manufacture its

Flow of Materials in Business Activities



Note: All amounts are for Tokuyama Corporation on a non-consolidated basis in fiscal 2015

Results of Environmental Protection Initiatives by the Tokuyama Factory in Fiscal 2015

Symbols: ○ Goal achieved, × Goal not achieved

Category	Items		FY2015 Target	FY2015 Result	Rating	FY2016 Target
Environmental Impact Reduction	Atmosphere	Soot	Maintain the current low impact situation	2%	＊	Maintain the current low-impact situation
	Water Quality	COD		13%	＊	
		N		3%	＊	
		P		-15%	＊	
	PRTR	PRTR		46%	＊	
Global Environment Conservation	Energy Conservation	Energy consumption on a per-unit basis	3% reduction of per-unit energy consumption by fiscal 2020 compared to fiscal 2005 0.9% reduction of per-unit energy consumption in fiscal 2015	-5.4%	○	0.8% reduction of per-unit energy consumption compared to fiscal 2005
Waste Reduction	Recycling	Effective utilization rate	Maintain at 94%	94.3%	○	Maintain at 94%
	Zero emissions	"Zero emissions" rate	Maintain at 99.9%	99.9%	○	Maintain at 99.9%

＊ Regarding performance data, Tokuyama has set a separate numerical management target for each department to maintain the current low-impact situation. The table above does not include specific numerical targets on atmosphere, water quality and PRTR for Tokuyama as a whole. Instead, the year-on-year difference of FY2015 results is shown.

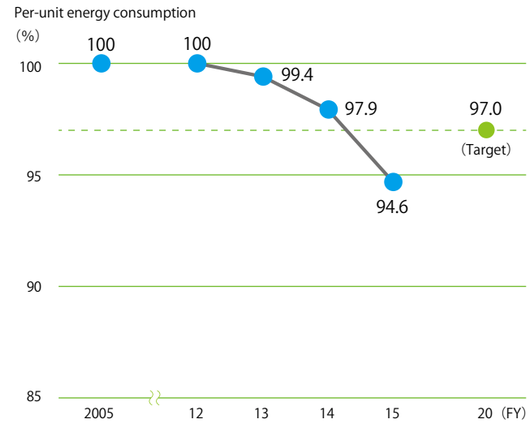
Environmental Preservation Costs

Category		Major Activities	Amount Invested (¥ million)	Costs (¥ million)
Costs in Business Areas	Pollution Control	Installation of electrostatic precipitators and drainage conduits, replacement of tanks	500	4,137
	Global Environmental Conservation	Renewal of an air conditioner	95	411
	Resource Recycling	Upgrade of desalination equipment, PCB waste treatment expenditures, etc.	256	1,032
Upstream and Downstream Costs			0	2
Management Activity Costs		Installation of environmental analysis equipment	47	242
Research and Development Costs			0	0
Social Activity Costs		Greenification and beautification measures Production of CSR report	0	74
Costs for Environmental Damage		Imposition, management of a former mining site	0	104
Total			898	6,002

Economic Benefits in Fiscal 2015

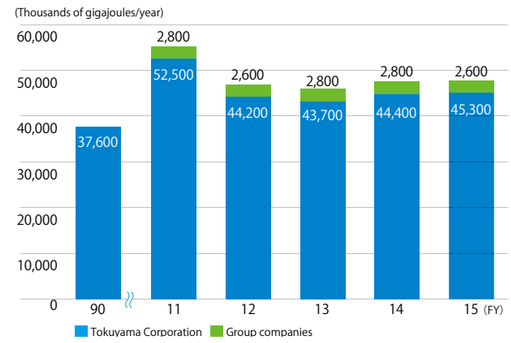
Category	Material Benefit (1,000 metric tons)	Economic Benefit (¥ million)
Gains on Reduction in Energy Consumption	-	172
Gains on Sale of Valuable Waste	87	132
Gains on Reduction in Waste Disposal Costs through Waste Recycling	274	708
Gains on Reduction in Raw Material and Fuel Costs through Waste Recycling	274	495
Total	-	1,507

Unit Energy Consumption Index* (Tokuyama Factory)



＊ The unit energy consumption index is calculated using a method recommended by the Japan Chemical Industry Association (JCIA).

Energy Consumption



core products such as caustic soda, cement, and polycrystalline silicon. It also emits carbon dioxide (CO_2), one of the greenhouse gases, primarily in its burning of fossil fuels and decarboxylation of limestone, which is used as a raw material for cement production.

The Company is working to reduce CO_2 emissions by implementing energy conservation measures, including upgrading to more energy-efficient equipment. The Tokuyama Factory, which accounts for more than 99% of the Company's total energy consumption, reduced per-unit energy consumption in fiscal 2015 by 5.4% compared to the fiscal 2005 level, advancing the Company's goal of reducing per-unit energy consumption in fiscal 2020 by 3.0% compared to the fiscal 2005 level.

Initiatives at Offices

In fiscal 2015, the Company's Tokyo Head Office made energy-saving settings to computers, removed some lights, and strictly regulated air conditioning. It also continued to participate in the government-led Cool Biz campaign, which encourages cooler, casual clothing in offices in the summer to reduce the need for air conditioning.

Contributing to Efforts to Combat Global Warming in the Consumer Sector

The Tokuyama Group is working to help reduce household CO_2 emissions by providing its Shanon brand of plastic window sashes, which are highly effective for saving energy in residences.

The Group is also making advances in the development of other technologies that can help combat global warming, such as polycrystalline silicon for solar cells and electrolyte membranes for fuel cells.

Global Warming Prevention Support Program

As part of its CSR-based environmental, energy-conservation and social-contribution initiatives, Tokuyama launched its Global Warming Prevention Support Program for all Tokuyama Group employees in April 2008.

The objectives of the program are to raise awareness of global warming among Group employees, encourage them to save energy, and help them reduce CO_2 emissions from their households. The Company covers part of the costs incurred by employees for purchasing and installing environmentally friendly products closely connected to the Group's business, namely residential-use plastic window sashes and solar power generation systems. Tokuyama continued to offer the program for the eight year in fiscal 2015, a year when it implemented measures to improve profitability. The usage of the program by employees is described below.

In addition, Tokuyama has set up a new groupware-based portal site for the program. The site is regularly updated with product usage reports and helpful information, such as recommended websites about global warming.

Adoption of Environmentally Friendly Products

	Plastic Window Sashes		Solar Power Generation Systems	
	Number of cases of subsidization	Units	Number of cases of subsidization	kW
FY2011	13	174	22	87
FY2012	6	61	23	108
FY2013	8	113	34	180
FY2014	8	80	11	58
FY2015	4	48	9	70
Total	65	885	143	690

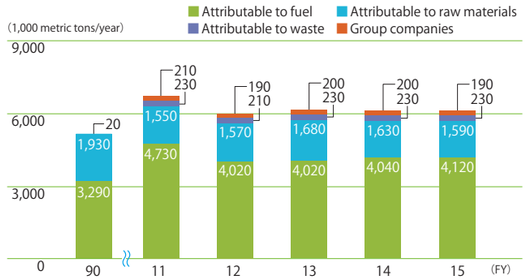
Reducing Atmospheric Emissions and Water Pollution

Tokuyama has been actively working to help protect the natural environment from early on in its history, implementing a wide range of measures designed to reduce pollutants into the atmosphere and water systems.

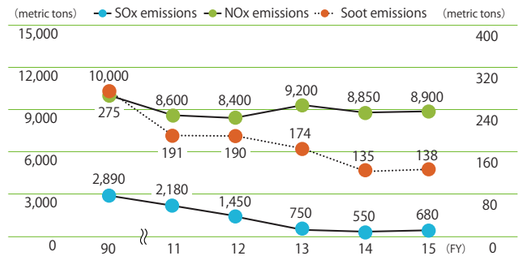
Amounts of Atmospheric Emissions

In order to reduce emissions of sulfur oxides (SOx), nitrogen oxides (NOx), and soot into the atmosphere, Tokuyama equips its boilers, cement kilns, and other facilities that generate these substances with emission control systems, including flue gas desulfurizers, denitration equipment, low-NOx burners, and high-performance dust collectors. In fiscal 2015, SOx emissions increased in accordance with higher operating rates for emitting facilities. Emissions of NOx and soot remained level year on year.

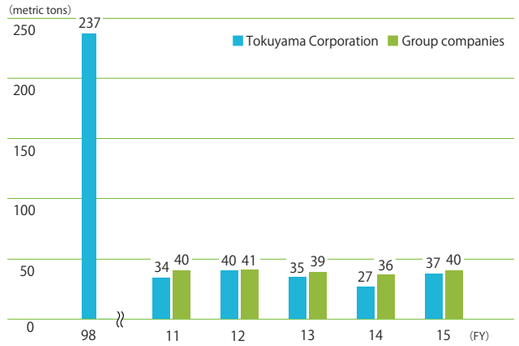
CO_2 Emissions



SOx, NOx and Soot Emissions



PRTR Substance Emissions



Amounts of PRTR-Designated Substances

Among all of the substances Tokuyama handled in fiscal 2015, 24 were subject to registration under the Pollutant Release and Transfer Register (PRTR)* system. In fiscal 2015, worksites implemented measures to reduce emissions of PRTR substances. However, emissions by Tokuyama Corporation increased by 37 metric tons accompanying higher operating rates for emitting facilities.

* The PRTR system collects and publishes data on the sources of designated harmful chemical substances and the amounts of these substances discharged in the environment or transported from production sites as part of waste matter.

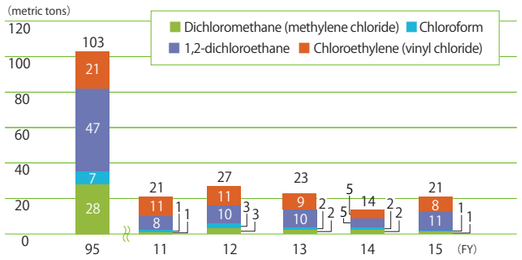
Amounts of Hazardous Air Pollutant Emissions

Tokuyama generates chloroethylene and three other substances that are among the 12 substances subject to voluntary controls in Japan's Air Pollution Control Law. Accordingly, the Company has formulated a voluntary action plan and carries out ongoing measures for reducing the emissions of these substances.

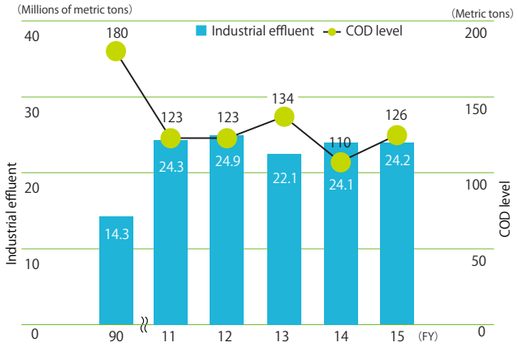
Measures to Reduce Dioxins

Tokuyama's waste oil incinerators and certain equipment in its vinyl chloride monomer manufacturing facilities are subject to regulations under Japan's Special Measures Law for Countermeasures against Dioxins. Accordingly, the Company measures the concentrations of dioxins in exhaust gases and wastewater emitted from these facilities to ensure that amounts are below regulatory limits.

Hazardous Air Pollutant Emissions



Industrial Effluent Amounts and COD Levels



Amounts of Industrial Effluent and Wastewater

The Tokuyama Factory follows a stringent system for monitoring industrial effluent and purifying wastewater using treatment equipment in order to comply with regulatory standards and limits set by the local government, as well as the Company's own standards, which are even stricter. The factory also employs activated sludge treatment facilities for reducing the discharge of nitrogen and phosphorous and meeting chemical oxygen demand (COD)* regulations for overall water quality.

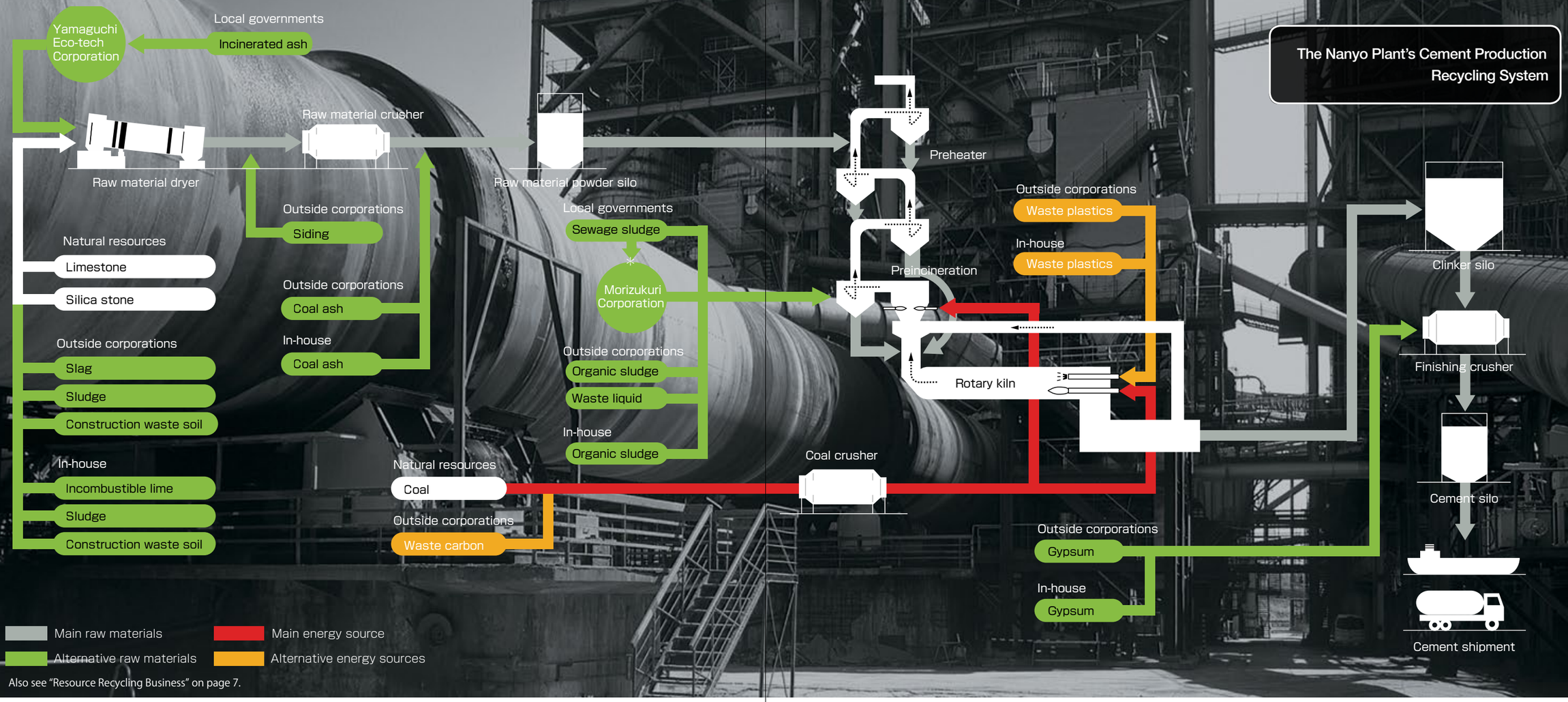
In fiscal 2015, COD and nitrogen emissions increased accompanying higher operating rates for emitting facilities and restarting of certain emitting facilities. Phosphorus emissions remained level year-on-year.

* Chemical oxygen demand is an indicator used to measure water quality, and refers to the amount of oxygen required to oxidize organic compounds in water.

Nitrogen and Phosphorus Emissions (metric tons)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Nitrogen	108	94	70	89	92
Phosphorus	2.8	2.7	2.4	2.6	2.2

The Nanyo Plant's Cement Production Recycling System



Also see "Resource Recycling Business" on page 7.

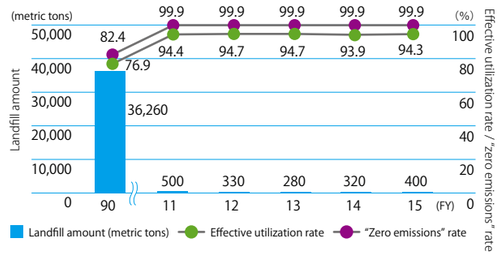
Recycling and Reducing Waste

Tokuyama makes exhaustive efforts to reduce and recycle the waste it generates. As a result, the Company maintained a 94% effective utilization rate of waste and again hit its "zero emissions" target of 99.9% in fiscal 2015.

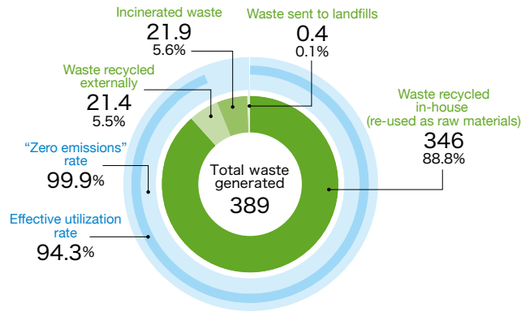
≫ Waste Management

Tokuyama generated a total of 389,000 metric tons of waste in fiscal 2015. It actively worked to recycle this waste both in and outside the Company, mainly by re-using waste matter as raw materials and fuel for cement at the Tokuyama Factory. In addition, packing materials, pallets and other wood waste were crushed and then used as fuel for power plants. Through its diligent efforts to recycle waste as raw material for cement, Tokuyama achieved an effective utilization rate of 94%, on par with the previous fiscal year. Moreover, owing to progress made in reusing waste and reducing the amount generated, the Company again achieved its "zero emissions" target of 99.9% in fiscal 2015.

Amount of Waste Sent to Landfills and Rate of Effective Utilization



Breakdown of Industrial Waste Treatment in Fiscal 2015

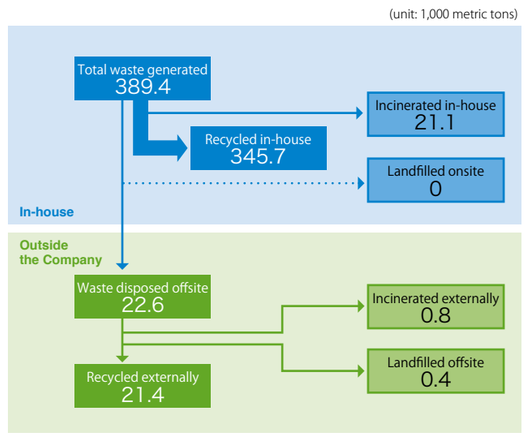


(Unit: 1,000 metric tons)

$$\text{Effective utilization rate (\%)} = \frac{\text{Amount of waste recycled (in-house and externally)}}{\text{Total waste generated}} \times 100$$

$$\text{"Zero emissions" rate (\%)} = \left[1 - \frac{\text{Amount of landfilled waste (onsite and offsite)}}{\text{Total waste generated}}\right] \times 100$$

Flow of Industrial Waste Treatment



Community Service Activities

Staying in Communication with Local Communities

Tokuyama pursues community dialogue and various other activities to help local communities to understand what it is doing to prevent accidents and protect the environment, seeking to be an essential member of each local community where it has a presence as well as the broader society.

On a tour of the liquid hydrogen station, part of the Tokuyama Factory RC Community Dialogue program

Tokuyama Factory Responsible Care Community Dialogue Program

The Tokuyama Factory has been conducting the annual RC Community Dialogue since 2004 to help nearby residents better understand the Company's efforts to prevent accidents and protect the environment. The dialogue held on September 17, 2015 focused on use of liquid hydrogen, and 16 representatives of the Tokuyama Factory, including the General Manager, met with 35 local residents and 8 officials from Shunan City.

The participants were briefed about the Company, its products, and its environmental and safety initiatives, as well as the plant's environmental and safety measures. An overview of Tokuyama's liquid hydrogen business was also given. After touring Tokuyama's liquid hydrogen facilities, the participants visited a local liquid hydrogen station open since summer 2015. Local government officials used a fuel cell vehicle to present their efforts to promote liquid hydrogen technology and its use.

Finally, participants were briefed on recent developments at Tokuyama and its social initiatives. They came away feeling "better informed about government efforts for liquid hydrogen use and Tokuyama's social initiatives." With local understanding and support, the Tokuyama Factory will continue making a sincere effort to prevent accidents and protect the environment.

Tokuyama Factory Responsible Care Community Dialogue Program

The tour of the liquid hydrogen station

The fuel cell vehicle

Site Reports

Tokuyama Factory

Location: 1-1, Mikage-cho, Shunan-shi, Yamaguchi 745-8648, Japan
Number of employees: 1,512
Total site area: 1.91 million m²
Main products: Cement, inorganic chemical products, organic chemical products, polycrystalline silicon, fumed silica, polyvinyl chloride, and other products

Tokuyama Factory General Manager
Hideki Adachi

Still situated at the Company's first business site, the Tokuyama Factory is the Group's main manufacturing facility, and its products account for about 90% of non-consolidated sales. The factory operates with the motto, "Go to work healthy and return home happy." Aiming to achieve 5.4 million accident-free hours at the factory and 9 million accident-free hours at its contractors, the factory is working hard to keep everyone on site happy and safe at work. In fiscal 2016, the factory's top priorities include: (1) identifying and eliminating risks in the handling of hazerdous substances, (2) conducting active safety dialogue to remove the root causes of risks that remain on the production floor, and (3) implementing hands-on hazard training for all employees in order to raise hazard awareness.

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	2FY015
SOx emissions	metric tons	2,180	1,450	750	550	680
NOx emissions	metric tons	8,600	8,400	9,200	8,850	8,900
Soot emissions	metric tons	191	190	174	135	138
Industrial water consumption	Million metric tons	43.8	41.3	42.2	41.7	42.1
Effluent discharged	Million metric tons	24.2	24.8	22.1	23.9	24.2
COD level	metric tons	119	119	132	110	124
Total nitrogen discharged	metric tons	108	94	70	89	92
Total phosphorous discharged	metric tons	2.8	2.7	2.4	2.6	2.2
PRTR-designated substance emissions	metric tons	32	39	33	25	36
Waste generated	Thousand metric tons	379	381	395	354	389
Waste sent to landfills	metric tons	490	320	277	313	383
Energy consumption	Thousand gigajoules	52,400	44,100	43,700	44,200	45,100
CO_2 emissions (originating from fossil fuel)	Thousand metric tons	4,730	4,020	4,010	4,040	4,110
Complaints	Cases	3	0	1	0	1

Emissions and Transfer of Specific PRTR-Designated Substances in Fiscal 2015

Substance name	Regulatory number	Amount of emissions				Amount transferred
		Atmospheric	Water	Soil	Subtotal	
1,2-Dichloroethane	157	10.6	0.0	0.0	10.6	0.3
Chloroethylene (vinyl chloride)	94	7.7	0.0	0.0	7.7	0.0
Toluene	300	5.1	0.0	0.0	5.1	51.0
Cresol	86	0.0	3.2	0.0	3.2	0.0
Chlorodifluoromethane	104	2.8	0.0	0.0	2.8	0.0
Chloromethane (methyl chloride)	128	2.4	0.0	0.0	2.4	0.0
Dichloromethane (methylene chloride)	186	1.3	0.0	0.0	1.3	0.0
Water-soluble compounds of zinc	1	0.0	1.4	0.0	1.4	0.0
Chloroform	127	0.7	0.0	0.0	0.7	0.0
1,2-Epoxypropane (propylene oxide)	68	0.6	0.0	0.0	0.6	2.1
1,2-Dichloropropane	178	0.4	0.0	0.0	0.4	165.7
Carbon tetrachloride	149	0.0	0.0	0.0	0.0	0.0
2,2-Azobisisobutyronitrile	16	0.0	0.0	0.0	0.0	0.0
Water-soluble copper salt	272	0.0	0.0	0.0	0.0	0.0
Hydrazine	333	0.0	0.0	0.0	0.0	0.0
Hydrogen fluoride and its water-soluble form	374	0.0	0.0	0.0	0.0	0.0
Benzene	400	0.0	0.0	0.0	0.0	0.0
Boron compounds	405	0.0	0.0	0.0	0.0	0.0
Dioxins	243	8.0	1.5	0.0	9.5	0.0
Total (excluding dioxins)		31.6	4.6	0.0	36.2	219.1

Substances are listed in descending order of emissions levels; substances with no emissions are listed in order of the regulatory number

Water refers to public waters

Amount transferred indicates the sum of the quantity transferred to sewage systems and the quantity subject to intermediate treatment

Total figures have been rounded to the first decimal place

Unit: metric tons (mg-TEQ equivalency for dioxins)

Kashima Factory

Location: 26 Sunayama, Kamisu-shi, Ibaraki 314-0255, Japan
Number of employees: 76
Total site area: 101,000㎡
Main products:

Produced by Tokuyama Corporation

Bulk pharmaceuticals for stomach and duodenal ulcer treatment drugs, and diabetes drugs; optical materials (plastic lens monomer, light modulating materials, and hard coating solutions); raw materials for electronic materials; metal cleaners

Produced by Tokuyama Dental Corporation

Dental materials (restorative materials, adhesives, relining materials, impression materials and investment materials)

Kashima Factory General Manager
Yoshiyuki Kitajima

The Kashima Factory strives to recycle waste matter while placing the utmost importance on the proper management and handling of chemical substances. As a result of this approach, the factory achieved an 74% effective utilization rate of waste in fiscal 2015. Waste sent to landfills for final disposal amounted to 20 metric tons. "Zero emissions" amounted to 98 % .

Looking ahead, the Kashima Factory is examining the feasibility of material and thermal recycling as it works to increase its effective utilization rate for all types of waste matter.

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	FY2015
Industrial water consumption	Thousand metric tons	71	76	51	48	43
Effluent discharged	Thousand metric tons	90	96	66	63	51
COD level	metric tons	4	4	3	3	2
PRTR-designated substance emissions	metric tons	2	1	2	2	1
Waste generated	metric tons	909	930	919	1,020	735
Waste sent to landfills	metric tons	7	7	7	11	20
Energy consumption*	Thousand gigajoules	57	59	36	36	33
CO_2 emissions (originating from fossil fuel)*	metric tons	2,324	2,399	2,476	2,465	2,264
Complaints	Cases	0	0	0	0	0

* In accordance with a revision of Japan's Act on the Rational Use of Energy, figures based on calorific values and other factors have been recalculated retrospectively to 1990.

Emissions and Transfer of Specific PRTR-Designated Substances in Fiscal 2015

Unit: metric tons

Substance Name	Regulatory Number	Amount of Emissions				Amount Transferred
		Atmospheric	Water	Soil	Subtotal	
Chloroform	127	0.4	0.0	0.0	0.4	7.3
Toluene	300	0.4	0.0	0.0	0.4	24.6
Dichloromethane	186	0.4	0.0	0.0	0.4	0.0
Acetonitrile	13	0.0	0.0	0.0	0.0	2.1
1,4-Dioxane	150	0.0	0.0	0.0	0.0	0.1
N,N-Dimethylacetamide	213	0.0	0.0	0.0	0.0	2.8
N,N-Dimethylformamide	232	0.0	0.0	0.0	0.0	2.0
2-Vinylpyridine	338	0.0	0.0	0.0	0.0	0.2
Total		1.3	0.0	0.0	1.3	39.1

Notes: All figures are the numerical sum for Tokuyama Corporation and Tokuyama Dental Corporation.

Substances are listed in descending order of emissions levels; substances with no emissions are listed in order of the regulatory number

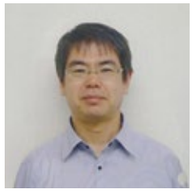
Water refers to public waters

Amount transferred indicates the sum of the quantity transferred to sewage systems and the quantity subject to intermediate treatment

Total figures have been rounded to the first decimal place

Sun • Tox Co., Ltd.

Established: February 14, 1992
Shareholder: Tokuyama Corporation (80%), Rengo Co., Ltd.(20%)
Head office: Akasaka Enoki-zaka Mori Building, 1-7-1 Akasaka, Minato-ku, Tokyo, Japan
Business activities: Manufacture and sale of biaxial-oriented polypropylene films and cast polypropylene films



Plant Manager
Kazunori Shimada

Location: 3075-18 Shimasu, Itako-shi, Ibaraki, Japan
Number of employees: 188
Total site area: 89,800㎡

Kanto Plant

Sun·Tox's Kanto Plant manufactures biaxial-oriented polypropylene films and cast polypropylene films, which are used for food packaging and other applications, totaling about 29,000 metric tons annually. As a Type 1 Designated Energy Management Factory under the Japan's Act on the Rational Use of Energy, the Kanto Plant strives to cut down on its overall energy consumption on a per-unit basis.

The plant also conducts initiatives to improve productivity and reduce waste, and actively interacts with its local community by participating in cleanup activities within the industrial park wher it is located. As it continues to implement three management systems, namely Japan's Occupational Safety and Health Management System (OSHMS), ISO 14001, and ISO 9001, the Kanto Plant is building on its achievements with the aim to be a community-based factory.

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	FY2015
Waste generated	metric tons	57	26	15	20	15
Waste sent to landfills	metric tons	43	7	4	10	5
Energy consumption	Thousand gigajoules	341	340	360	351	356
CO_2 emissions	Thousand metric tons	19	19	20	20	21
SOx emissions	metric tons	0.4	0.3	0.2	0.3	0.3
NOx emissions	metric tons	0.7	0.6	0.7	0.6	0.7
Soot emissions	metric tons	0.04	0.03	0.06	0.05	0.04

Plant Manager
Naoki Ueda

Location: 7-7, Harumi-cho, Shunan-shi, Yamaguchi, Japan
Number of employees: 154
Total site area: 24,100㎡

Tokuyama Plant

Sun·Tox's Tokuyama Plant manufactures environmentally friendly biaxial-oriented polypropylene films, which are mainly used for food and beverage packaging, amounting to about 23,000 metric tons annually.

As part of its environmental initiatives, the plant is actively working to reduce per-unit energy consumption and increase recycling rates. With respect to safety, it acquired OSHMS certification in 2013 for all of its departments including R&D departments. Under the slogan, "Strictly following safety procedures, making manufacturing enjoyable, and never compromising quality," the plant aims to keep its facilities operating safely so it can be depended upon by the community, customers and employees.

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	FY2015
Waste generated	metric tons	70	67	66	76	74
Waste sent to landfills	metric tons	1	2	2	1	1
Energy consumption	Thousand gigajoules	448	445	463	458	471
CO_2 emissions	Thousand metric tons	26	26	27	27	27
PRTR-designated substance emissions	metric tons	0.0	0.0	0.0	0.0	0.0
Complaints	Cases	0	0	0	0	0

Sun Arrow Kasei Co., Ltd.

Established: February 1, 1999
Shareholder: Tokuyama Corporation (100%)
Head office: 1-2 Harumi-cho, Shunan-shi, Yamaguchi, Japan
Business activities: Manufacture and sale of polyvinyl chloride compounds

Plant Manager
Yasuhito Yasusawa

Location: 1-2 Harumi-cho, Shunan-shi, Yamaguchi, Japan
Number of employees: 24
Total site area: 3,280㎡

Tokuyama Plant

Sun Arrow Kasei's Tokuyama Plant manufactures and sells polyvinyl chloride compounds used for pipes, joints, and other items essential for upgrading infrastructure, as well as resin window frames, which are highly effective for saving energy. The plant practices ISO 14001 environmental management, and ensures safety and prevents accidents by having all employees participate in activities designed to eliminate problems, identify near-miss situations, and practice the 5S principles. Owing to this approach, the plant has maintained an accident- and disaster-free record for 16 years since its establishment. In fiscal 2016, the plant intends to strictly enforce internal controls while carrying out Responsible Care activities based on a safety-first policy for all operations.

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	FY2015
Power consumption	Thousand kilowatt hours	2,763	2,455	2,562	2,473	2,659
Waste plastic produced	metric tons	110	107	125	108	141
Waste plastic effectively used	metric tons	110	107	124	105	141
Waste sent to landfills offsite for disposal	metric tons	10	15	7	8	6
Steam usage	metric tons	240	240	240	240	240
Industrial water consumption	Thousand metric tons	65	65	65	65	65

Tokuyama Polypropylene Co., Ltd.

Established: April 2, 2001
Shareholder: Tokuyama (50%), Prime Polymer Co., Ltd. (50%)
Location: 1-1 Harumi-cho, Shunan-shi, Yamaguchi, Japan
Business activities: Manufacture and sale of polypropylene resin and flexible polypropylene resin

Plant Manager
Hiroaki Endo

Location: 1-1 Harumi-cho, Shunan-shi, Yamaguchi, Japan
Number of employees: 62
Total site area: 70,997㎡

Tokuyama Plant

Tokuyama Polypropylene's Tokuyama Plant conducts risk assessments of processes, facilities, and operations, and takes measures to identify near-miss situations and points of concern, in order to enhance the plant's safety culture. The result has been a perfect accident- and disaster-free record since the time it was first established as Tokuyama's polypropylene film business 40 years ago. The plant is scheduled to obtain recertification in 2016 under the High Pressure Gas Safety Act and the Ordinance on Safety of Boilers and Pressure Vessels, and is pursuing Responsible Care activities with the goals of extending its accident- and disaster-free record, reducing its environmental impact, and eliminating customer complaints related to quality

Performance Data

	Unit	FY2011	FY2012	FY2013	FY2014	FY2015
Industrial water consumption	Thousand metric tons	366	343	411	308	370
Waste generated	metric tons	123	160	116	89	35
Waste sent to landfills	metric tons	0	1.9*	15	2.4*	0
Unit Energy Consumption Index (Fiscal 2002=100)	%	88	88	84	76	71

＊ Year with periodic maintenance

Detailed Data

Environmental Data for Tokuyama

Input (Unit: 1,000 metric tons)	FY2011	FY2012	FY2013	FY2014	FY2015	Comparison with the previous fiscal year (%)
Waste and by-products	1,680	1,780	1,945	1,790	1,780	-0.6
Fuel	2,270	2,150	1,760	1,820	1,810	-0.5
Raw materials	5,880	5,650	6,080	5,900	5,990	1.5
Industrial water	43,900	41,300	42,200	41,700	42,100	1.0
Output (Unit: 1,000 metric tons)	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**FY2015**	**Comparison with the previous fiscal year (%)**
Carbon dioxide	6,510	5,800	5,930	5,910	6,000	1.5
Waste (incinerated and landfill)	21	20	21	22	22	0.0
Substances with environmental impact	11	10	10	10	10	0.0
Process effluent	24,300	24,900	22,100	24,000	24,200	0.8

Emissions of SOx, NOx, and Soot

Unit: Metric tons	FY2011	FY2012	FY2013	FY2014	FY2015	Comparison with the previous fiscal year (%)
SOx	2,180	1,450	750	550	680	23.6
NOx	8,600	8,400	9,200	8,850	8,900	0.6
Soot	191	190	174	135	138	2.2

Discharge of Nitrogen and Phosphorous

Unit: Metric tons	FY2011	FY2012	FY2013	FY2014	FY2015	Comparison with the previous fiscal year (%)
Nitrogen	108	94	70	89	92	3.4
Phosphorous	2.8	2.7	2.4	2.6	2.2	-15.4

Waste Management

Unit: 1,000 metric tons	FY2011	FY2012	FY2013	FY2014	FY2015	Comparison with the previous fiscal year (%)
Waste recycled in-house	331	337	350	312	346	10.9
Waste recycled externally	27.3	25.0	24.5	21.9	21.4	-2.3
Incinerated waste	21	19.7	20.5	21.3	21.9	2.8
Waste sent to landfills	0.5	0.3	0.3	0.3	0.4	33.3

Energy Consumed on a Per-Unit Basis* at the Tokuyama Factory

Unit: %	Base year (FY2005)	FY2012	FY2013	FY2014	FY2015	Target (FY2020)
Per-unit energy consumption	100.0	100.0	99.4	97.9	94.6	97.0

※ The factory has been working since 2014 to reduce per-unit energy consumption in fiscal 2020 by 3.0% compared to the fiscal 2005 level.

Amount of Waste Matter and By-Products Used to Produce Cement

Unit: Kg per metric ton of cement	Base year (FY1991)	FY2011	FY2012	FY2013	FY2014	FY2015
Amount used	227	446	458	461	448	459

Material and Thermal Recycling Amounts in Cement Production

Unit: 1,000 metric tons	Base year (FY1991)	FY2011	FY2012	FY2013	FY2014	FY2015
Material recycling	1,550	1,610	1,730	1,879	1,702	1,711
Thermal recycling	4	70	54	66	86	74

Energy Consumption

Unit: 1,000 gigajoules	Base year (1990)	FY2011	FY2012	FY2013	FY2014	FY2015
Tokuyama Corporation	37,600	52,500	44,200	43,700	44,400	45,300
Group companies	—	2,800	2,600	2,800	2,800	2,600

Emissions of CO_2

Unit: 1,000 metric tons	Base year (1990)	FY2011	FY2012	FY2013	FY2014	FY2015
Originating from fuel	3,290	4,730	4,020	4,020	4,040	4,120
Originating from raw materials	1,930	1,550	1,570	1,680	1,630	1,590
Originating from waste matter	20	230	210	230	230	230
Group companies		210	190	200	200	190

Emissions of PRTR-Designated Substances

Unit: Metric tons	Base year (1998)	FY2011	FY2012	FY2013	FY2014	FY2015
Tokuyama Corporation	237	34	40	35	27	37
Group companies		40	41	39	36	40

Emissions of Hazardous Air Pollutants

Unit: Metric tons	Base year (1995)	FY2011	FY2012	FY2013	FY2014	FY2015
Dichloromethane (methylene chloride)	28	1	3	2	1.5	1.4
Chloroform	7	1	3	2	2.1	1.1
1,2-Dichloroethane	47	8	10	10	4.9	10.6
Chloroethylene (vinyl chloride)	21	11	11	9	5	7.7

Discharge of Industrial Effluent and Levels of COD

	Base year (1990)	FY2011	FY2012	FY2013	FY2014	FY2015
Industrial effluent (million metric tons)	14.3	24.3	24.9	22.1	24.1	24.2
COD (metric tons)	180	123	123	134	112	126

Breakdown of Waste Treatment Methods

Unit: 1,000 metric tons	FY2009	FY2011	FY2012	FY2013	FY2014	FY2015
Waste recycled in-house	260	331	337	350	312	346
Waste recycled externally	20.8	27.3	25	24.5	21.9	21.4
Incinerated waste	18.9	21	19.7	20.5	21.3	21.9
Waste sent to landfills	0.4	0.5	0.5	0.3	0.3	0.4
Total waste generated	300	380	382	396	355	389

Landfilled and Recycled Waste

	Base year (1990)	FY2011	FY2012	FY2013	FY2014	FY2015
Landfilled waste (1,000 metric tons)	36,260	500	330	280	320	400
Effective utilization rate (%)	77	94.4	94.7	94.7	93.9	94.3
“Zero emissions” rate (%)	82	99.9	99.9	99.9	99.9	99.9

Principal Group Companies

Chemicals / Resins

TOKUYAMA & CENTRAL SODA Inc.
Stocking and sales of soda ash and calcium chloride
Suzuye & Suzuye BLDG.,
12-9 Toranomon 1-chome, Minato-ku, Tokyo 105-0001, Japan
TEL: +81-3-5157-1130 FAX: +81-3-5157-1181

Tokuyama Siltech Co., Ltd.
Manufacture and sale of crystalline layered sodium silicate
7-38 Harumi-cho, Shunan-shi, Yamaguchi 745-0024, Japan
TEL: +81-834-34-2937 FAX: +81-834-33-3748

Nishinihon Resicoat Co., Ltd.
Surface treatment of metal products
783-2, Ato-cho, Aki-ku, Hiroshima-shi, Hiroshima 731-4231, Japan
TEL: +81-82-856-0771 FAX: +81-82-856-0772

Shin Dai-ichi Vinyl Corporation
Manufacture and sale of polyvinyl chloride
Sumitomo Seimei Nishishimbashi Bldg.,
1-10-2 Nishi-Shimbashi, Minato-ku, Tokyo 105-0003, Japan
TEL: +81-3-3595-0721 FAX: +81-3-3595-1903

SUN ARROW KASEI CO., LTD.
Manufacture and sale of PVC compounds
1-2 Harumi-cho, Shunan-shi, Yamaguchi 745-0024, Japan
TEL: +81-834-34-2930 FAX: +81-834-33-3743

Sun・Tox Co., Ltd.
Manufacture and sale of polyolefin film
Akasaka Enoki-Zaka Mori Bldg.,
7-1 Akasaka 1-chome, Minato-ku, Tokyo 107-0052, Japan
TEL: +81-3-5797-7645 FAX: +81-3-5797-7636

Tokuyama Polypropylene Co., Ltd.
Manufacture and sale of polypropylene resin
1-1 Harumi-cho, Shunan-shi, Yamaguchi 745-0024, Japan
TEL: +81-834-34-2707 FAX: +81-834-33-3677

Tomitec Co., Ltd.
Manufacture of plastic products
3055-1 Ogo, Tabuse-cho, Kumage-gun, Yamaguchi 742-1513, Japan
TEL: +81-820-55-5678 FAX: +81-820-55-5300

Yamaguchi Liquid Hydrogen Corporation
Manufacture and sale of liquid-hydrogen
6-4 Hommachi 3-chome, Chuo-ku, Osaka-shi, Osaka 541-0053, Japan
TEL: +81-6-7673-3458 FAX: +81-6-7673-3307

Shanghai Tokuyama Plastics Co., Ltd.
Manufacture and sale of microporous film
138 Xintao Road, Qingpu Industrial Zone, Shanghai China 201707
TEL: +86-21-5970-5669 FAX: +86-21-5970-3756

Tianjin Tokuyama Plastics Co., Ltd.
Manufacture and sale of microporous film
Building 2, No.1, XEDA North 3rd Road, Xiqing Economic
Development Area, Tianjin China 300385
TEL: +86-22-8720-2155 FAX: +86-22-8720-2156

Electronics / Equipment / Membranes / Detergents

Figaro Engineering Inc.
Manufacture and sale of gas sensors and gas detection equipment
1-5-11 Senbanishi, Mino-shi, Osaka 562-8505, Japan
TEL: +81-72-728- 2561 FAX: +81-72-728-0467

ASTOM Corporation
Manufacture and sale of ion exchange membranes and systems
6-2 Nishi-shimbashi 2-chome, Minato-ku, Tokyo 105-0003, Japan
TEL: +81-3-3597-5019 FAX: +81-3-3597-5024

Tokuyama-DOWA Power Materials Co., Ltd.
Manufacture and sale of aluminum nitride substrates
29-17 Misasacho, Shunan-shi, Yamaguchi 746-0004, Japan
TEL: +81-834-64-7211 FAX: +81-834-64-7212

Tokuyama METEL Corporation
Manufacture and sale of industrial cleaner
8thfl., keihin Bldg., 1-1 Minami-watarida-cho,Kawasaki-ku,
Kawasaki-shi, Kanagawa 210-0855, Japan
TEL: +81-44-328-7747 FAX: +81-44-328-7757

Hantok Chemicals Co., Ltd.
Manufacture and sale of photoresist developer
26th Fl., Glass Tower Bldg., 534 Teheran-ro, Gangnam-gu, Seoul,
06181, Korea
TEL: +82-2-6974-4895 FAX: +82-2-6974-4899

Tokuyama Chemicals (Zhejiang) Co., Ltd.
Manufacture and sale of fumed silica and high-purity silane
No.555 Yashan West Road, Economic Development Zone,
Zhapu Port, Jiaxing, Zhejiang China 314201
TEL: +86-573-8552-7887 FAX: +86-573-8552-3355

Taiwan Tokuyama Corporation
Manufacture and sale of high purity chemicals for electronics
manufacturing
21 Shi Jian Road, Hsin Chu Industrial Park, Hu Kou, Hsin
Chu 303,Taiwan, R.O.C.
TEL: +886-3-597-9108 FAX: +886-3-597-9208

Tokuyama Electronic Chemicals Pte. Ltd.
Manufacture of high purity chemicals for electronics manufacturing
21 Gul Road, Singapore 629355
TEL: +65-6862-1081 FAX: +65-6862-1267

Tokuyama Malaysia Sdn. Bhd.
Manufacture and sale of polycrystalline silicon
Lot 600, 6th Floor, Wisma Bukit Mata Kuching, Jalan Tunku
Abdul Rahman, 93100 Kuching, Sarawak, Malaysia
TEL: +60-82-422-705 FAX: +60-82-427-708

Cement / Building Materials

Tokuyama Tsusho Trading Co., Ltd.
Stocking and sale of cement and raw concrete
Shiba 2-chome Bldg., 28-8 Shiba 2-chome, Minato-ku,
Tokyo 105-0014, Japan
TEL: +81-3-5418-1500 FAX: +81-3-5418-1506

Kansai Tokuyama Trading Co., Ltd.
Sale of cement, ready-mixed concrete, and building materials
Nakanoshima Central Tower
2-7 Nakanoshima 2-chome, Kita-ku, Osaka-shi, Osaka 530-0005, Japan
TEL: +81-6-6201-7290 FAX: +81-6-6201-7299

Tokushin Co., Ltd.
Manufacture and sale of cement, ready-mixed concrete, and
civil engineering & construction materials
Hiroshima Nissay Green Bldg., 8-18 Teppoucho, Naka-ku,
Hiroshima-shi, Hiroshima 730-0017, Japan
TEL: +81-82-221-9477 FAX: +81-82-223-2347

Kagawa Tokuyama Co., Ltd.
Sale of cement and construction materials; manufacture and
sale of ready-mixed concrete
1-45 Kozaihonmachi, Takamatsu-shi, Kagawa 761-8012, Japan
TEL: +81-87-882-0612 FAX: +81-87-882-7338

Tokushou Co., Ltd.
Manufacture and sale of cement, ready-mixed concrete, and
building materials
Sanei Bldg., 1-14-16 Tenjin, Chuo-ku, Fukuoka-shi,
Fukuoka 810-0001, Japan
TEL: +81-92-732-6706 FAX: +81-92-739-5245

Tokyo Tokuyama Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete and interlocking blocks
Shiba 2-chome Bldg., 28-8 Shiba 2-chome, Minato-ku,
Tokyo 105-0014, Japan
TEL: +81-3-5443-7280 FAX: +81-3-5443-7281

Kawasaki Tokuyama Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
13-7 Ogicho, Kawasaki-ku, Kawasaki-shi, Kanagawa 210-0867, Japan
TEL: +81-44-322-7730 FAX: +81-44-329-1156

Sanyo Tokuyama Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
636 Toba, Kurashiki-shi, Okayama 7100-0012, Japan
TEL: +81-86-464-0500 FAX: +81-86-463-3313

Chugoku Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
3-2-2 Dejima, Minami-ku, Hiroshima-shi, Hiroshima 734-0013, Japan
TEL: +81-82-251-4431 FAX: +81-82-251-4434

Hiroshima Tokuyama Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
1-5-3 Taibi, Saka-cho, Aki-gun, Hiroshima 731-0013, Japan
TEL: +81-82-885-5611 FAX: +81-82-885-5699

Seibu Tokuyama Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
1-1 Mikage-cho, Shunan-shi, Yamaguchi 745-0053, Japan
TEL: +81-834-34-2372 FAX: +81-834-27-0371

Kyushu Tokuyama Ready Mixed Concrete Co., Ltd.
Manufacture and sale of ready-mixed concrete
2-82-2 Higashihama, Higashi-ku, Fukuoka-shi, Fukuoka 812-0055, Japan
TEL: +81-92-651-8667 FAX: +81-92-631-4792

Toyomi Co., Ltd.
Manufacture and sale of ready-mixed concrete
5-4-9 Toyomi, Oita-shi, Oita 870-0018, Japan
TEL: +81-97-534-6081 FAX: +81-97-538-1528

Notsuharu Co., Ltd.
Manufacture and sale of ready-mixed concrete
5-4-9 Toyomi, Oita-shi, Oita 870-0018, Japan
TEL: +81-97-534-6081 FAX: +81-97-538-1528

FL Tokuyama Corporation
Sale of plaster sheets and items made from plaster sheets
Shiba 2-chome Bldg., 28-8 Shiba 2-chome, Minato-ku,
Tokyo 105-0014, Japan
TEL: +81-3-5418-1530 FAX: +81-3-5418-1532

Mizushima Riverment Co., Ltd.
Manufacture and sale of blast-furnace cement and blast-furnace slag
1 Mizushimakawasakidori, Kurashiki-shi, Okayama 712-8074, Japan
TEL: +81-86-447-4607 FAX: +81-86-447-4699

Yamaguchi Eco-tech Corporation
Recycling of refuse incinerator ash
7-46 Harumicho, Shunan-shi, Yamaguchi 745-0024, Japan
TEL: +81-834-34-2935 FAX: +81-834-33-3746

Tokuyama Chiyoda Gypsum Co., Ltd.
Collection, transport, and disposal of discarded gypsum;
manufacture and sale of dehydrated gypsum
928 Takamatsu, Kawagoe-cho, Mie-gun, Mie 510-8121, Japan
TEL: +81-59-361-3073 FAX: +81-59-361-3064

Tokuyama Mtech Corporation
Manufacture and sale of building materials
ERVIC Ningyocho Building., 2-5 Nihonbashi Ningyo-cho 1-chome,
Chuo-ku, Tokyo 103-0013, Japan
TEL: +81-3-5643-3601 FAX: +81-3-3249-3615

Excel Shanon Corporation
Manufacture and sale of plastic window sashes and various kinds of
house construction materials
Ichigo Nihonbashi East Building., Bakuro-cho, Nihonbashi, Chuo-ku,
Tokyo 103-0002, Japan
TEL: +81-3-3527-2560 FAX: +81-3-3527-2567

Tohoku Shannon Co., Ltd.
Manufacture of plastic windows
46-1 Daiichi Chiwari, Kitayuguchi, Hanamaki-shi,
Iwate 025-0301, Japan
TEL: +81-198-27-4300 FAX: +81-198-27-4309

Tokuyama Nouvelle Cal O donie S.A.
Manufacture and sale of cement Pointe Kuari, Baie de Numbo-BP
310 98845 NOUM Γ A, Nouvelle Cal Odonie
TEL: +687-24-32-95 FAX: +687-28-18-12

Healthcare

Tokuyama Dental Corporation
Manufacture and sale of dental materials and equipment
38-9 Taitou 1-chome, Taitou-ku, Tokyo 110-0016, Japan
TEL: +81-3-3835-2261 FAX: +81-3-3835-2265

A&T Corporation
Development, manufacture and sale of clinical testing agents
and equipment systems
Yokohama Plaza Bldg., 2-6 Kinko-cho, Kanagawa-ku, Yokohama-shi,
Kanagawa 221-0056, Japan
TEL: +81-45-440-5810 FAX: +81-45-440-5820

Others

Tokuyama Logistics Corporation
Logistics company
7-18 Irihune-cho, Shunan-shi, Yamaguchi 745-0047, Japan
TEL: +81-834-21-3327 FAX: +81-834-21-3350

Tokuyama Information Service Corporation
Information system solutions
1-7 Shinjukudori, Shunan-shi, Yamaguchi 745-0056, Japan
TEL: +81-834-33-3330 FAX: +81-834-33-3339

Shunan System Sangyo Co., Ltd.
Civil engineering and construction work and planning, and
onsite contracted factory work
1-1 Eguchi 1-chome, Shunan-shi, Yamaguchi 745-0862, Japan
TEL: +81-834-34-2380 FAX: +81-834-22-1908

Shunan Swimming Club Co., Ltd.
Operation of health promotion facilities including swimming
and fitness clubs
1-26 Eguchi 1-chome, Shunan-shi, Yamaguchi 745-0862, Japan
TEL: +81-834-31-8819 FAX: +81-834-31-8891

Shunan Bulk Terminal Co., Ltd.
Warehousing operations for bulk shipments
8 Harumi-cho, Shunan-shi, Yamaguchi 745-0024, Japan
TEL: +81-834-34-2031 FAX: +81-834-33-3576

Third-Party Review

A Review of Tokuyama's CSR Report 2016

Eriko Nashioka

Representative Director, Institute for Environmental Management Accounting, Certified Public Accountant and Certified Tax Accountant, and part-time lecturer in environmental accounting and environmental auditing for the Faculty of Commerce, Doshisha University

≫ New Foundation and What It Means

In May 2016, the Tokuyama Group outlined a clear vision to establish a new foundation and create value for society. The president's message communicates the top management's stance on this transformation, and describes how the Group's management is rooted in practicing corporate social responsibility (CSR) and Responsible Care. Furthermore, it outlines a strong intent to proactively create new value to strengthen the Group's financial foundation and do its part in building a more sustainable society. The stance on to social responsibility could be even better communicated by outlining the principles and policies developed based on the corporate vision, and listing the related CSR targets and performance, using numerical data.

≫ Creating External Value

The feature articles communicate the Group's determination to exist for the purpose of helping to solve social issues, by doing business that creates new value. They describe how the Group has embraced an outward-looking perspective as shown by its partnerships with other companies, and is maintaining its strengths while changing with the times. This is reflected in the Group's internal efforts to support women in the workplace, efforts which should be communicated externally.

≫ Information Disclosure and Communication

For Tokuyama to continue creating new value for society, it must adopt a medium- and long-range view and interface with diverse stakeholders. The Group must examine the vast amount of information available from diverse stakeholders and determine its priorities in light of its corporate vision. As a next step, I recommend that the Group work with stakeholders to decide upon its priorities, in light of the corporate vision and social needs, and disclose them to the public.

Response to Third-party Review

Toshihiko Annaka

Managing Executive Officer, and General Manager, Corporate Social Responsibility Division

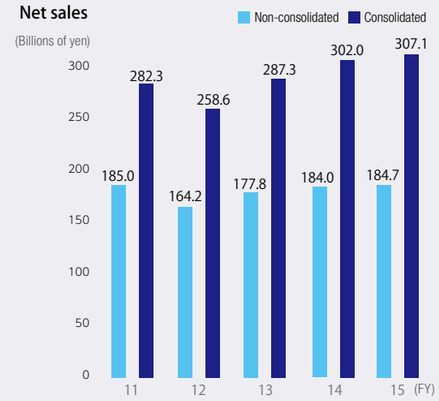
In this report, we outlined the approach behind our Medium-Term Management Plan, including the corporate vision that we unveiled in May 2016, which is based on customer satisfaction. I hope that we have managed to communicate the Group's determination to meeting its social responsibilities by delivering customer satisfaction, and its continuing efforts to practice socially responsible management.

I also hope that the examples given in this report shed light on how Tokuyama has existed to address social issues throughout its history. At the same time, the Group is seeking to actively change with the times and become more outward-looking.

We welcome the suggestion to enhance our communication with stakeholders, so that we can obtain information to reconcile with our corporate vision as the basis for setting CSR targets, and the suggestion to list our CSR performance. We will examine ways of communicating our approach to target setting and look at disclosing benchmarks that are clearly indicative of our performance.

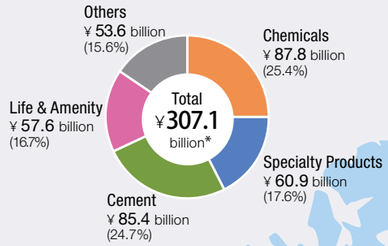
Aerial View of the Tokuyama Factory

Financial Highlights



Fiscal 2015 Sales by Business Segment

* Segment sales results include inter-segment sales



Global Network

Tokuyama has expanded globally, with factories and sales branches now established in eight countries and regions around the world, primarily in Asia.