CSR Report and Corporate Profile 2014

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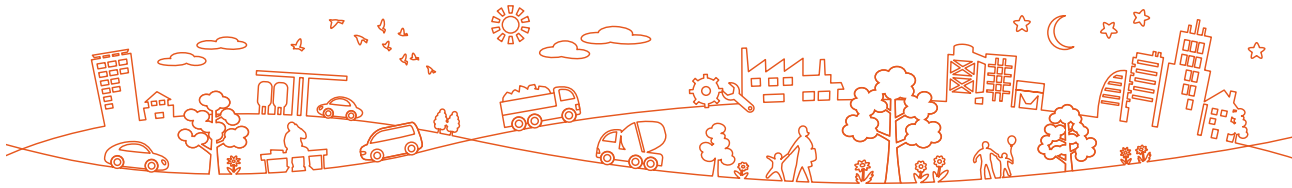

User Guide

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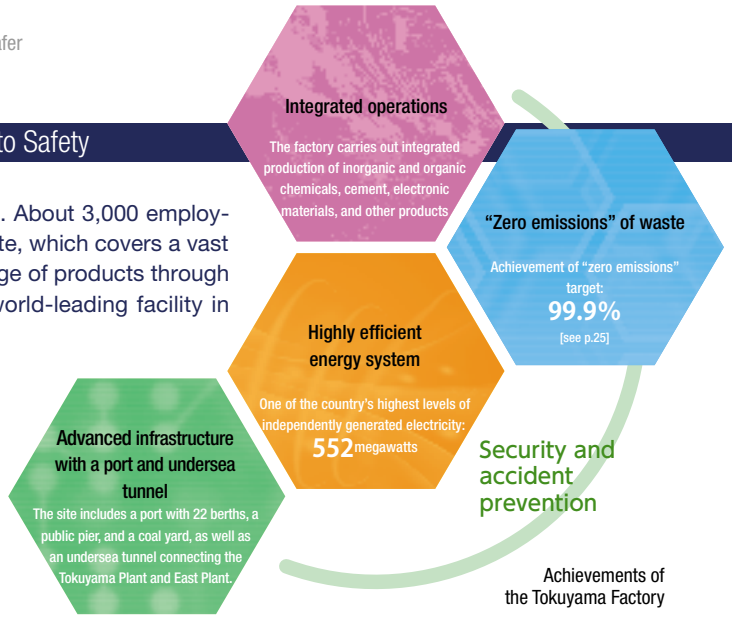
Special Feature 1: The Tokuyama Factory—Discovering the Secrets to Safety

The Tokuyama Factory is Tokuyama's flagship manufacturing facility. About 3,000 employees as well as members of over 70 affiliated companies work at the site, which covers a vast area almost as large as the country of Monaco. Producing a wide range of products through highly integrated operations, the Tokuyama Factory is not only a world-leading facility in terms of production capacity, but also in terms of safety.

Safety starts by equipping workers on the shop floor with the skills to make improvements and a keen awareness of risks



Achievements of the Tokuyama Factory

Tokuyama Factory General Manager Hideki Adachi (second from left) discusses safety with employees from affiliated companies

>> Earning stakeholders' trust for almost a century

Situated at the site where the Company was founded, the Tokuyama Factory is the Group's main manufacturing facility, and the products it manufactures account for about 90% of non-consolidated sales. Since the Company was established in 1918, the factory has been producing a diverse range of products including soda ash, caustic soda, cement, polyvinyl chloride, polycrystalline silicon, aluminum nitride ceramics, and various kinds of chlorine-derived products.

Reflecting the Company's business growth over almost 100 years, operations at the Tokuyama Factory have become highly integrated, with many plants linked together and operational units working seamlessly to effectively utilize raw materials, products, byproducts, and waste matter. Moreover, the factory pursues an open integration model that goes beyond in-house connections to involve the many other companies at the Shunan Petrochemical Complex in terms of electricity, raw material supplies, and reuse of waste. This lean production system enables all of the companies to achieve a high level of efficiency, which has become one of Tokuyama's strengths.

Another one of the Company's strengths is the relations of trust it has built up with all of its stakeholders. Making the most of its business activities, Tokuyama continuously engages with employees, affiliated companies and suppliers, as well as government officials and members of the local community. The Tokuyama Factory, in particular, has been giving the highest priority to safety and accident prevention initiatives as a long-established member of the community, while continuously manufacturing products that are useful for peoples' lives.

>> Ensuring safety by fostering good communication among all levels of personnel and affiliated companies

Working together with the local community, everyone at the Tokuyama Factory accepts the important responsibility of ensuring safety. With around 3,000 workers onsite, including members of affiliated companies, the Tokuyama Factory practices safety based on the principle that no one should ever leave the premises with an injury, following the slogan of "Going to work healthy and going home happy."

Production lines operate 24 hours around the clock over three alternating shifts. During the changeover of shifts, workers closely share information about safety and accident prevention in addition to work duties. Safety patrol teams also check production facilities on a daily basis.

Various safety activities carried out in routine work

Workers repeat the day's safety procedure goals together when changing shifts (upper left); a safety team on patrol at a production area (upper right); workers jointly operate a control panel (bottom left); a younger employee receives guidance at work (bottom right).

The Occupational Health and Safety Committee holds meetings every month for the entire site, including affiliated companies. Meeting participants discuss countermeasures based on reported cases of problems and accidents both within and outside the Tokuyama Group, and share safety information within the site. Taking this information into account, each manufacturing division and section holds safety meetings every month. Discussions regarding safety-related initiatives are also held semi-annually with affiliated companies involved in equipment inspections and maintenance. In these discussions, cases of near misses* that have been reported as well as proposals for specific improvements are being effectively applied in efforts to avoid hazards and prevent accidents.

* Although near misses do not result in an accident or disaster, by identifying, recording, and sharing information on cases in which it is reasonable to assume that such mistakes could have directly led to such an incident, activities can be undertaken to prevent serious accidents or disasters before they occur.

>> Everyday care and attention make safe and reliable operations possible

Located at the Tokuyama Factory's East Plant, the Chemicals Manufacturing Department No. 2 produces organic solvents, which are essential for manufacturing polyvinyl chloride resin, as well as all kinds of products, which is made using ethylene dichloride and chlorine sent from the Chemical Manufacturing Department No. 1 via a pipeline in an undersea tunnel. By diligently carrying out safety and accident-prevention activities every day, the department's 95 workers have achieved an accident-free record for eight consecutive years—equivalent to 1.5 million man hours.

With the goal of extending the department's accident-free record to 10 years, covering about 2 million man hours, experienced workers are making efforts to hand down the skills and expertise needed to avoid hazards as well as their safety-first approach to the next generation of workers. Every day before work commences, the department holds safety meetings to raise each member's awareness of hazards and to facilitate communication between experienced and young workers. Furthermore, to enable everyone to correctly and safely carry out the numerous operations conducted on production lines, young workers are paired up with skilled personnel, and they repeatedly perform tasks together so that the younger workers can learn proper procedures. In this way, new and young workers can learn and master practical skills, including techniques and pointers that are difficult to teach outside of the shop floor, methods for checking safety, and the importance of following proper sequences of procedures and their effect on the processes that follow.

Young workers learn skills and knowledge about preventing accidents from experienced personnel

Operational manuals posted on each control panel

As a standard practice, operational manuals explaining procedures that have been posted at a facility are also posted on each control panel. This improves operational efficiency while also helping to ensure that younger, less familiar workers do not make mistakes and that experienced workers do not become careless.

Yukihiro Miyamoto
General Manager,
Chemicals Manufacturing
Department No. 2

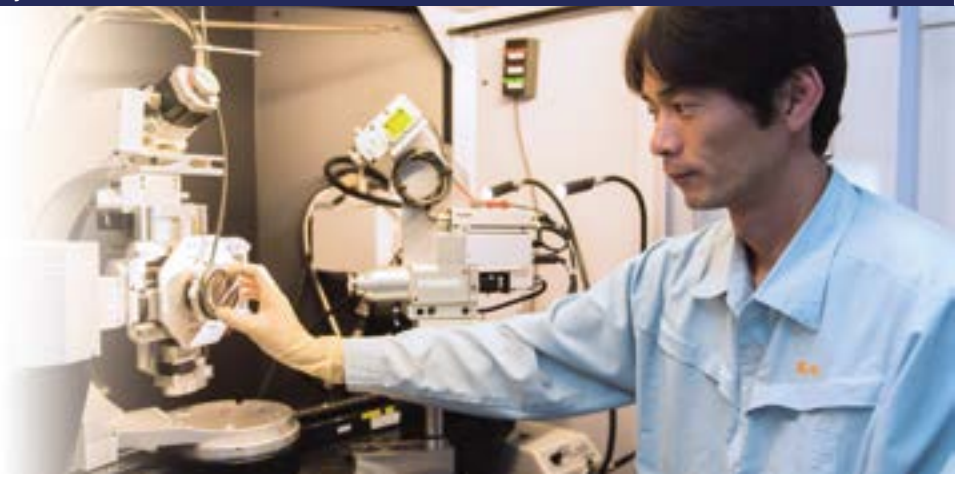
The first step to safety is to be aware of hazardous environments

To put it bluntly, there is no safe place at a chemical plant. Everyone is surrounded by many potential hazards, so keeping aware that one is in a dangerous area should be the first precaution. Without that approach, I don't think the plant can be safe. Since there is always pressure on the shop floor to increase production efficiency, everyone has a duty to ensure safety. So there can be no individual variations in the way we perceive danger—each and every one of us must properly recognize the dangers.

There are no magic tricks for guaranteeing safety. All we can do is continuously stress the importance of safety, again and again. Doing that increases our sensitivity toward risks and encourages us to practice safety. As a manager in charge of safety, I believe that I must be this kind of safety messenger. In my own words, I tell workers about accidents and disasters that have happened not only in my own experience but also outside the company. By drawing on my own experience and convictions, I try to get the workers to appreciate the importance of safety so that they truly understand the dangers and make sure to avoid them.

Special Feature 2: Tokuyama's Research and Development—Delivers Technologies That Make Society Safer

With the increasingly fast pace of globalization, issues confronting societies are becoming global in scale; they are common problems facing all humanity. Against this backdrop, Tokuyama is working to help find solutions to these problems by making the most of the chemistry capabilities it has built up over many years.



Neutron-detection Scintillators Leverage the Innovative Power of Chemistry to Make Society Safer

>> Creating New Technologies and Novel Materials That Benefit Society

Based on its R&D principle of contributing to the development of society through chemistry-derived technologies, Tokuyama is pursuing two overarching objectives in its research and development: to create unique, world-leading technologies by combining the Company's established core technologies with all-new technologies, and to produce original products by applying these technologies to meet the needs of the market.

To achieve these objectives, Tokuyama is proactively expanding its open innovation activities. The Company is collaborating in joint-research projects with universities and research institutes while focusing on fields it has developed over many years as a chemical

manufacturer. These fields include organic and inorganic material synthesis, purification techniques, crystallization methods, electrochemistry, and polymer chemistry technologies. The Company is also striving to accelerate its development of technologies and products that can help solve social issues and meet the need for new materials that can contribute to clean energy and energy conservation.

>> Specializing in Key Areas and Speeding Up Development

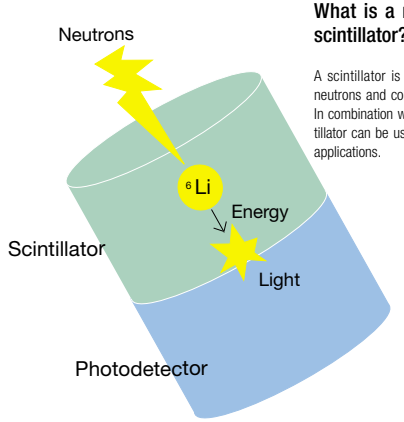
Tokuyama is focusing its R&D resources on key areas that may eventually lead to new kinds of value, materials and services that can be beneficial for addressing changes in society, such as an aging population and outdated infrastructure. In this way, the Company is accelerating its creation of original technologies and products that other companies cannot imitate.

>> Leveraging Crystallization Technologies —One of Tokuyama's Strengths

As shown in the chronological chart below, Tokuyama has been carrying out research and development on optical single crystals since around 2000. Over the years, Tokuyama has developed and accumulated a large number of original technologies regarding crystal growth, strain elimination, furnace design, optical evaluation and processing of optical crystals.

Meanwhile, countries all around the world began to tighten homeland security to combat terrorism in the wake of the simultaneous terrorist attacks on the United States on September 11, 2001. In this context, a lot of neutron detectors have been rapidly deployed, especially in the United States, as a means to prevent the illicit proliferation of nuclear threats like plutonium and enriched uranium.

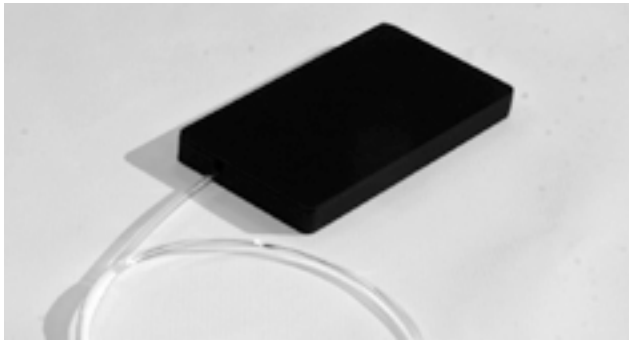
With the suddenly growing demand for neutron detectors, helium-3, the gas mainly used for neutron detection up until that time, fell into a supply crisis and became diffi cult to procure internationally due to the soaring price in the market. Consequently, there were urgent demands for the development of an



What is a neutron-detection scintillator?

A scintillator is a material which absorbs neutrons and converts their energy to light. In combination with a photodetector, a scintillator can be used as a detector in various applications.

LiCAF scintillator
LiCAF is a complex fluoride crystal made of lithium, calcium, aluminum, and fluorine. A LiCAF crystal scintillator can be used for neutron detection in a wide range of applications because it contains a high concentration of ^{6}Li, which is highly effective for capturing neutrons, and it can be formed in complex shapes and cover a large area.



An example of a portable detector module using of the LiCAF scintillator

A security gate using neutron detectors to check for nuclear substances

alternative detector consisting of solid material instead of helium-3.

In response to this situation, Tokuyama focused its research on neutron-detection scintillators as a solid material to replace helium-3, drawing on the crystal technologies accumulated in the past. This led to the successful development of a special fluoride single crystal containing lithium-6 (^{6}Li), which has a high sensitivity to neutrons. This fluoride single crystal can be handled and processed easily because it is a solid material, and can detect neutrons with higher speed and sensitivity than conventional gas. Thanks to these advantages, users can potentially utilize the material for a wide range of applications, not only security, but also environmental monitoring and boron neutron capture therapy (BNCT) for brain tumors and other forms of cancer. BNCT is an advanced medical treatment which is expected to become popular. Particularly for the treatment of brain tumors, BNCT can annihilate only the cancer cells, greatly lessening the concern about side effects associated with conventional radiation therapies.

Tokuyama is currently conducting demonstration tests in various industries and trying to establish business models, aiming to commercialize its fluoride single crystal in fiscal 2015.

Practical skills lead to knowledge, and repeating that process brings about new things

Kentaro Fukuda
Doctor of Engineering
Senior Researcher,
Research & Development Department,
MOT Division

Gas has been used to detect neutrons for a long time, and there was no progress made in switching over to a solid substance because there were no materials that could detect only neutrons without reacting to X-rays and gamma rays, which are released together with the neutrons. When solid materials were tried, they ended up reacting in some way to the X-rays and gamma rays. Therefore, our biggest challenge was to overcome this problem. We repeatedly carried out experiments while changing the combinations of materials, eventually testing over 1,000 different materials.

Growing fluoride crystals is not simple, but Tokuyama has very advanced technical expertise in crystallization and excellent facilities. Furthermore, we incorporated technologies from Tohoku University, with which we had been conducting joint-research in the past, and succeeded in drastically shortening the time required for crystallization from the typical time of several weeks to just one or two days. As a result, we realized a fluoride crystal of sufficient performance after around one year.

As a researcher, I give about the same level of importance to practical skills as I give to theoretical thinking. Of course, many experiments end up in failure or produce different results than expected, but because of that, we can change our ideas and see things in new ways. By repeating this process over and over, anyone can learn things he didn't understand before, or develop skills that he didn't previously have. That is the true pleasure of doing research and development.

Now we are finally moving ahead with commercialization. Since the technology can be used in various industries, I hope this research makes further progress and our products contribute to society.

Practice of Environmental Management

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.

Environmental management of Tokuyama

Performance in Fiscal 2013

>> Flow of Materials in Business Activities

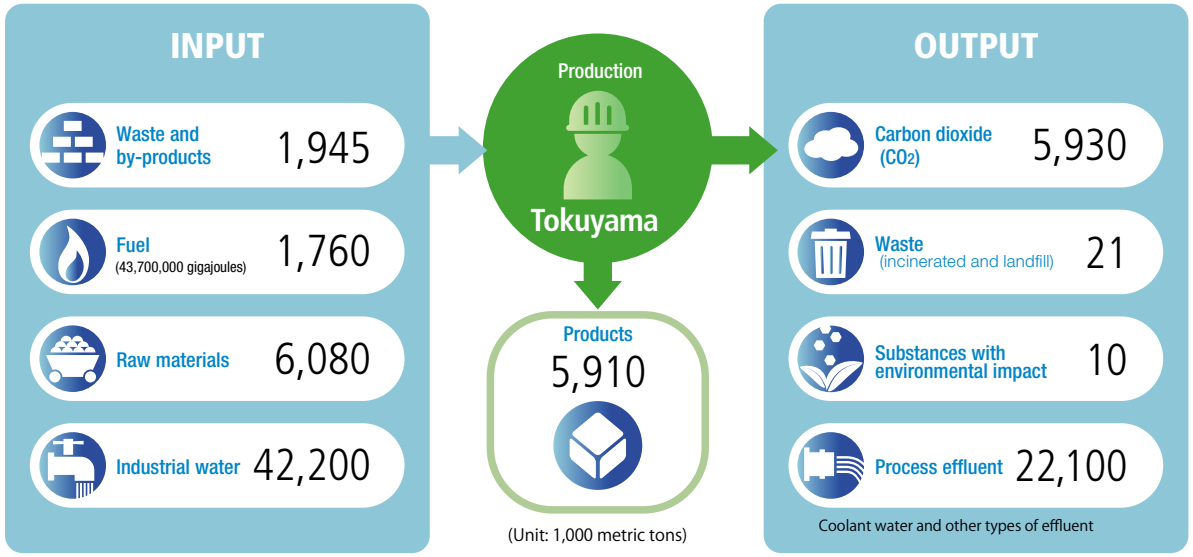
Tokuyama works to accurately determine the input and output of materials for production, and regularly sets new targets aimed at reducing environmental impact.

>> Results of Environmental Protection Initiatives in Fiscal 2013

Among its targets for reducing environmental impact in fiscal 2013, Tokuyama did not meet its target for reducing energy consumption on a per-unit basis due to a decrease in the overall operating rate of its factories. It also fell short of its target for reducing chemical oxygen demand (COD) in water, owing to a greater burden on its treatment facilities resulting from the increased operating rate of related facilities. However, Tokuyama achieved its other water quality targets for reducing nitrogen and phosphorous. It also met targets for reducing soot and substances designated by the Pollutant Release and Transfer Register (PRTR), as well as targets for recycling and reducing emissions of waste to virtually zero.

After closely examining changes in the composition of its product portfolio, Tokuyama set a new medium-term energy conservation target of improving per-unit energy consumption by 3.0% compared to the fiscal 2005 amount by

Flow of Materials in Business Activities



Note: All amounts are for Tokuyama Corporation on a non-consolidated basis in fiscal 2013

Results of Environmental Protection Initiatives by the Tokuyama Factory in Fiscal 2013

Symbols: ○ Goal achieved, × Goal not achieved

Category	Items		FY2013 Target	FY2013 Result	Rating	FY2014 Target
Environmental Impact Reduction	Atmosphere	Soot	Emission target reset to 200 metric tons per year to reflect operating forecasts and characteristics of facilities	-14%	○	200 metric tons per year (set at approximately 1.3 times the fiscal 2012 result to reflect operating forecasts and characteristics of facilities)
	Water Quality	COD	Same level as the fiscal 2010 result	+6%	×	Same level as the fiscal 2010 result
		N	Same level as the fiscal 2010 result	-37%	○	Same level as the fiscal 2010 result
		P	Same level as the average result for the previous three years	-20%	○	Same level as the average result for the previous three years
	PRTR	PRTR	Same level as the average target values for the previous three years	-2%	○	Same level as the average target values for the previous three years
Global Environment Conservation	Energy Conservation	Energy consumption on a per-unit basis	24% improvement compared to fiscal 1990	20.6% improvement	×	Improve per-unit energy consumption of products
Waste Reduction	Recycling	Effective utilization rate	Maintain at 94%	94.8%	○	Maintain at 94%
	Zero emissions	"Zero emissions" rate	Maintain at 99.9%	99.9%	○	Maintain at 99.9%

fiscal 2020.

Tokuyama is currently in the process of reviewing and examining its numerical targets, looking to set new annual performance goals starting in fiscal 2015. Until now, the Company has pursued more ambitious targets than those set in regulations and other standards. It recognizes that making these targets even more ambitious will be challenging since, as performance indicators, they no longer reflect such factors as the considerable influence that changes in business conditions have on the operating rates of facilities.

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 2013, 57% was intended for resource recycling, followed by 28% for pollution control, 11% for global environmental conservation, and 4% for management activities. The main investments were intended to improve the performance of neutralizing facilities, as well as to upgrade equipment and install facilities. Meanwhile, among environmental costs in fiscal 2013, 70% of the total was generated by pollution control, 17% by resource recycling, and 6% by global environmental conservation.

>> Economic Benefits of Environmental

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 2013, these economic benefits totaled almost ¥1.7 billion, a slight decrease of ¥25 million compared to the previous fiscal year.

Measures to Help Combat Global Warming

It is extremely important that every company take measures to curb global warming. With this in mind, Tokuyama is making steady progress in conserving energy throughout its business activities, and supporting efforts by employees to save energy at home.

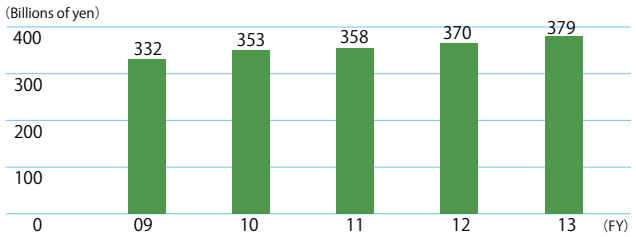
Environmental Preservation Costs

Category		Major Activities	Amount Invested (¥ million)	Costs (¥ million)
Costs in Business Areas	Pollution Control	Replacement of electric dust collectors and neutralizing facilities, etc.	238	4, 639
	Global Environmental Conservation	Improvement of facilities for the effective utilization of coal	95	395
	Resource Recycling	Expansion of facility capacity to handle increasing amounts of waste disposal	485	1, 126
Upstream and Downstream Costs			0	1
Management Activity Costs		Environmental analysis equipment, etc.	32	267
Research and Development Costs			0	0
Social Activity Costs		Greenery development, production of CSR report	0	69
Costs for Environmental Damage		Imposition, management of a former mining site	0	144
Total			850	6, 642

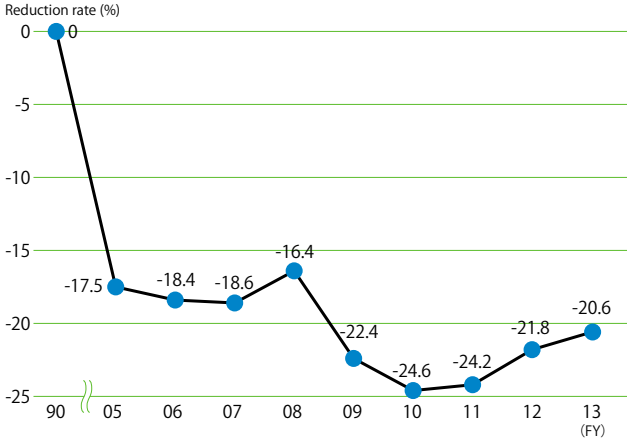
Economic Benefits in Fiscal 2013

Category	Material Benefit (1,000 metric tons)	Economic Benefit (¥ million)
Gains on Reduction in Energy Consumption	-	196
Gains on Sale of Valuable Waste	74	200
Gains on Reduction in Waste Disposal Costs through Waste Recycling	295	759
Gains on Reduction in Raw Material and Fuel Costs through Waste Recycling	296	534
Total	-	1, 689

Cumulative Total of Environmental Investment (Calculated from Fiscal 1990)



Unit Energy Consumption Index* (Tokuyama Factory)



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

>> Promoting energy conservation

Tokuyama consumes a vast amount of energy to manufacture its 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.

Recognizing the grave importance of combating global warming, Tokuyama is working to keep its CO_2 emissions in check by implementing energy conservation measures. The Tokuyama Factory, which accounts for more than 99% of the Company's total energy consumption, proceeded with switch from burning coal to alternative fuels, and made improvements designed to save energy in fiscal 2013. The factory has reduced energy consumption on a per-unit basis by 20.6% compared to the fiscal 1990 level; however, this was mainly due to a decrease in its operating rate. Having taken into account the business environment in which it operates, Tokuyama has set a target for reducing per-unit energy consumption by 3.0% compared to the fiscal 2005 level, effective from fiscal 2014 through to fiscal 2020.

Tokuyama is re-examining its per-unit energy consumption target for fiscal 2014, including a review of the base year for comparison, to account for its operating environment.

>> Initiatives at offices

In fiscal 2013, 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

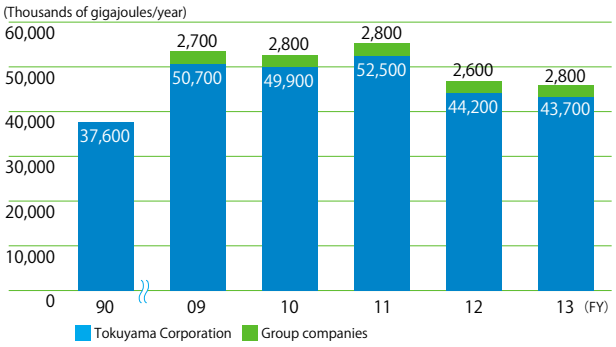
As part of its CSR-based environmental, energy-conservation and social-contribution initiatives, Tokuyama launched its Global Warming Prevention Support Program for all Tokuyama Group employees in April 2008.

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 seventh year in fiscal 2013, a year when it implemented measures to improve profitability. The usage of the program by employees is described below.

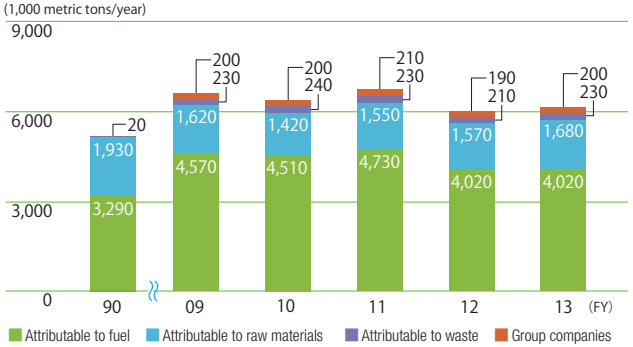
In fiscal 2013, the number of subsidies for such product units was higher than any of the previous six years of the program. Evidently, employees decided to purchase the environmentally friendly products covered by the program before Japan raised its consumption tax rate in April 2014, immediately following fiscal 2013. The result also suggests that general households are becoming increasingly aware of the need to combat global warming.

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

Energy Consumption



CO_2 Emissions



Adoption of Environmentally Friendly Products

	Plastic Window Sashes		Solar Power Generation Systems	
	Number of cases of subsidization	(Units)	Number of cases of subsidization	(kw)
FY2009	7	141	8	33.35
FY2010	7	91	30	129.41
FY2011	13	174	22	87.04
FY2012	6	61	23	108.27
FY2013	8	113	34	179.76
Total	53	757	123	561.84

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 an effort 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 2013, although emissions of NOx increased year on year as a result of higher operating rates at manufacturing facilities, the Company reduced emissions of SOx and soot compared to the previous fiscal year. It made a considerable reduction of SOx, in particular, by reducing the number of days that facilities with high emission levels were permitted to operate.

>> Amounts of PRTR-designated substances

Among all of the substances Tokuyama handled in fiscal 2013, 24 were subject to registration under the Pollutant Release and Transfer Register (PRTR)* system. Every workplace handling these substances undertook measures to reduce emissions in fiscal 2013. As a result, the Company reduced its emissions to 35 metric tons compared to the previous fiscal year.

* 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 formulates 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 while working to ensure that amounts are below regulatory limits.

>> 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.

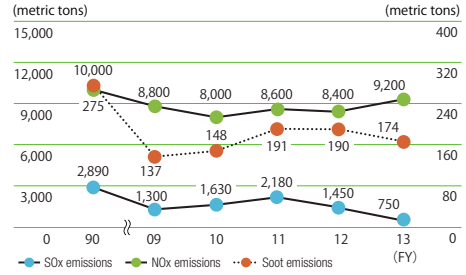
In fiscal 2013, the Tokuyama Factory reduced the nitrogen and phosphorous it discharged compared to the previous fiscal year. The level of COD, however, was 6% above its target, owing to a greater burden on treatment facilities resulting from increased production at related facilities.

* 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.

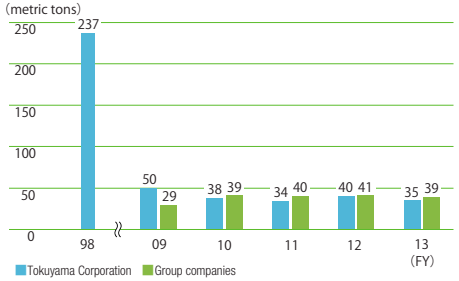
Nitrogen and Phosphorus Emissions (metric tons)

	FY2009	FY2010	FY2011	FY2012	FY2013
Nitrogen	140	110	108	94	70
Phosphorus	3.6	2.3	2.8	2.7	2.4

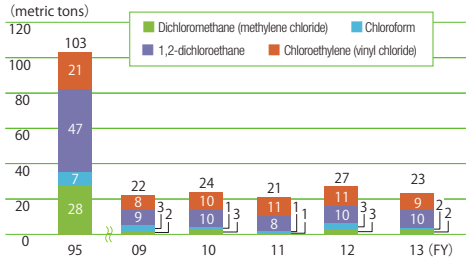
SOx, NOx and Soot Emissions



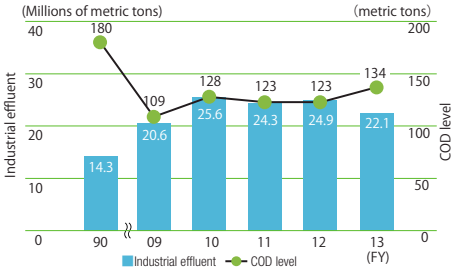
PRTR Substance Emissions



Hazardous Air Pollutant Emissions



Industrial Effluent Amounts and COD Levels



Recycling and Reducing Waste

Tokuyama makes exhaustive efforts to reduce and recycle the waste it generates. As a result, the Company maintained a 94.7% effective utilization rate of waste and again hit its "zero emissions" target of 99.9% in fiscal 2013.

>> Waste Disposal (Non-Consolidated Basis)

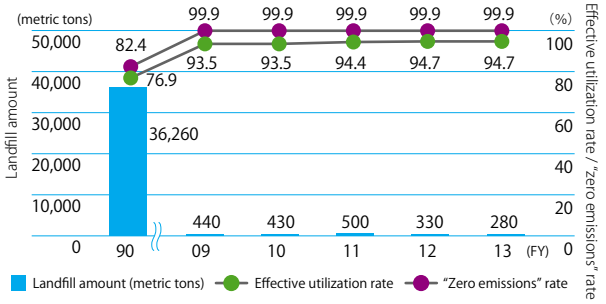
Tokuyama generated a total of 396,000 metric tons of waste in fiscal 2013. It actively worked to recycle this waste both in and outside the Company, mainly by re-using waste matter as raw materials and fuel for cement at the Tokuyama Factory. In addition, packing materials, pallets and other wood waste 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 94.7%, 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 2013.

>> Management and Treatment of PCB Waste

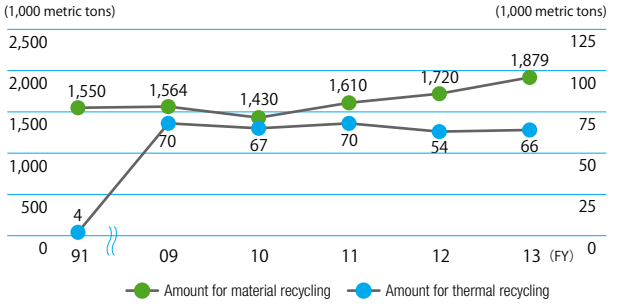
In fiscal 2013, the Tokuyama Group disposed 38 of its 68 transformers and capacitors containing high concentrations of polychlorinated biphenyl (PCB).* The Group has stopped using all of the remaining 30 items, and is storing and managing them in compliance with Japan's Special Measures Law for the Proper Treatment of Polychlorinated Biphenyl Waste.

* PCB is an organic chlorinated compound that emits dioxins when burned at a low temperature. It was formerly used in transformers, capacitors, and many other electric products because of its excellent electrical properties, including chemical stability, thermal resistance, chemical resistance, and insulation. Because of its danger to the human body, however, it was banned from production and usage in 1972. Owners of transformers, capacitors, or other products containing PCB are responsible for their storage at suitable facilities.

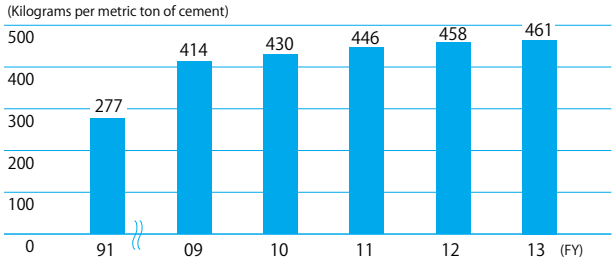
Amount of Waste Sent to Landfills and Rate of Effective Utilization



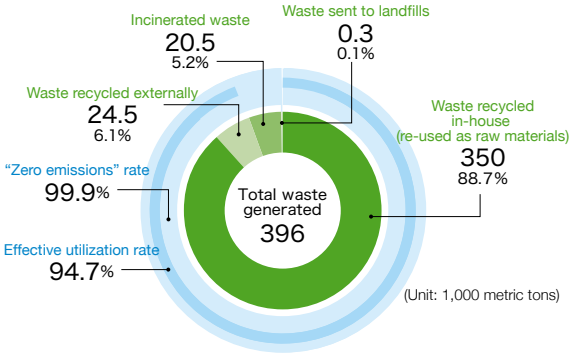
Amount of Recycled Waste



Amount of Waste Byproducts Used in Cement



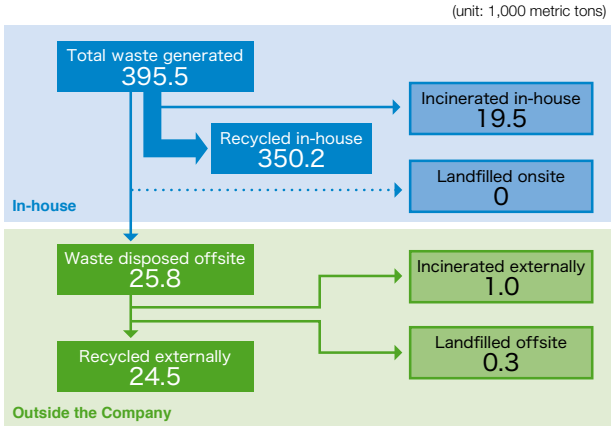
Breakdown of Industrial Waste Treatment in Fiscal 2013

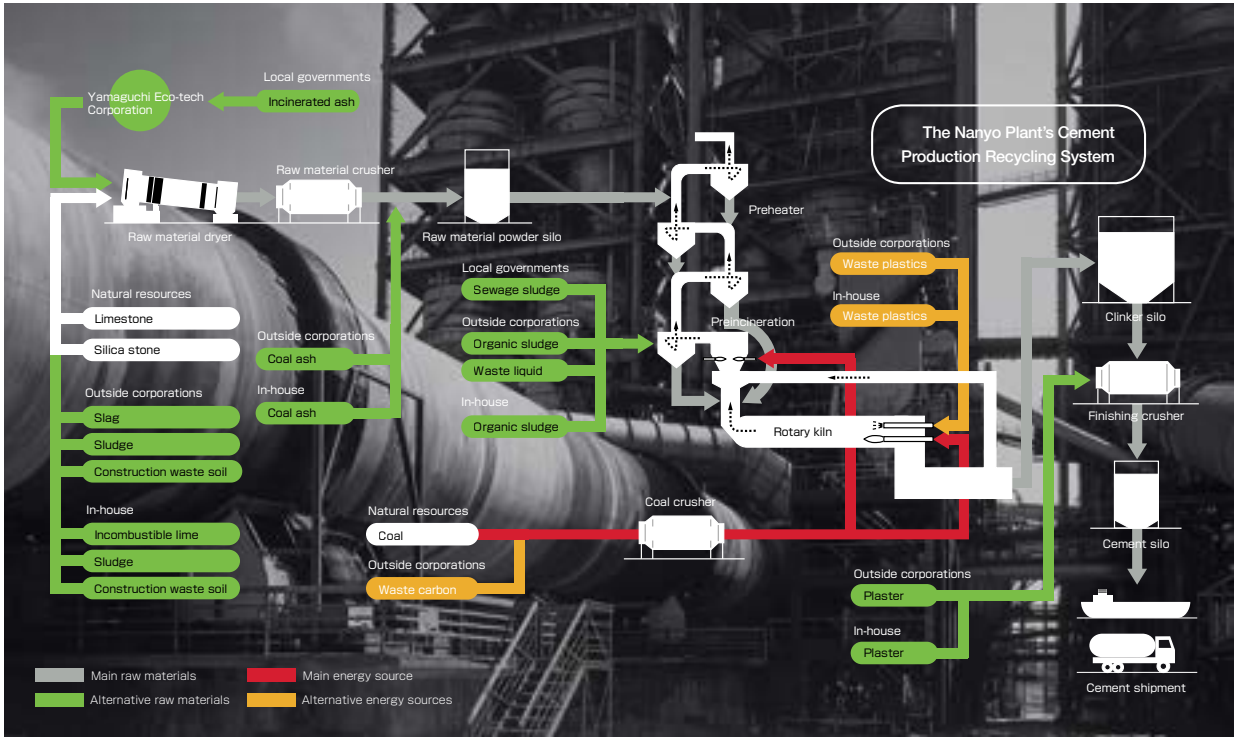


$$\text{Effective utilization rate (\%)} = \frac{\text{Amount of waste recycled (in-house and externally)}}{\text{Total waste generated}} \times 100$$

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

Flow of Industrial Waste Treatment





Working Together with Local Communities

Community Dialogues on Responsible Care

>> Community Dialogue on Responsible Care Held

On September 27, 2013, Tokuyama held its fiscal 2013 Tokuyama Factory Community Dialogue on Responsible Care to provide members of a local residents' association with information on initiatives intended to protect the environment, ensure safety and prevent accidents at the factory. Participants comprised 33 members of the residents' association, two officials from Shunan City, and 17 members of the Company, including the Tokuyama Factory general manager.

The event was held for the tenth time since it began in 2004. To commemorate the occasion, in addition to the presentations and factory tour given every year, the Company organized a boat tour to offer the participants a view of the factory's various facilities from the sea.

In the presentations, members of the Company explained the current status of measures for protecting the environment, ensuring safety and preventing accidents. After that, department heads expressed their determination to protect the environment, and led the visitors on the factory tour of the liquid hydrogen plant and onsite power plant.

Members of the residents' association expressed their appreciation for the event, and noted how it helped them become more familiar with Tokuyama and understand the factory's environmental and safety activities and contributions to the community.

With the support of the local community, all members of the Tokuyama Factory are united in their commitment to protecting the environment and keeping the site safe and accident-free.

Presentations given during the Tokuyama Factory Community Dialogue on Responsible Care

A boat tour around the factory site

Accident Prevention and Occupational Health and Safety

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 carries out exhaustive measures for ensuring that its facilities and operations are safe in accordance with the three safety principles of its Company-wide Safety Management Policy. Specifically, the Company's worksites conduct safety inspections and kiken yochi hazard prediction, examine near-miss accidents, practice the 5S principles (a system in Japan for promoting sorting, setting in order, systematic cleaning, standardizing, and sustaining discipline), and use a point and call-out method for affirming onsite conditions. Furthermore, the Company provides safety education and training and utilizes systems for managing risks, changes, and crises as a means to raise the level of safety management and identify specific sources of risks.

>> Working to maintain workplace safety and ensure no accidents

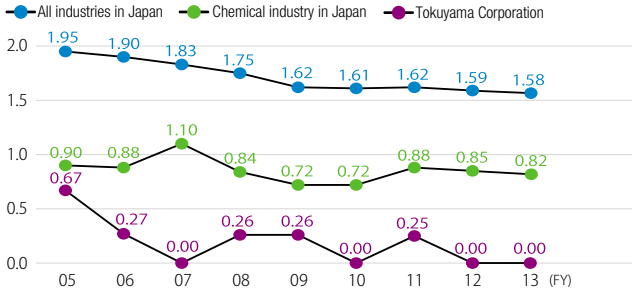
In fiscal 2013, no facility accidents occurred at any of Tokuyama's worksites, including the Kashima Factory and Tsukuba Research Laboratory. Consequently, the Tokuyama Factory maintained its record of zero facility accidents for the sixth consecutive year. Looking ahead, Tokuyama will continue making steadfast efforts to ensure that no accidents or disasters happen at its worksites.

Tokuyama's Commitment to Occupational Health and Safety

>> Improving safety management systems

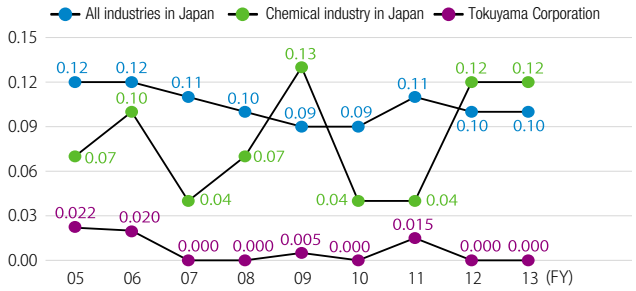
Through its safety management systems, Tokuyama conducts risk assessments covering operations, equipment, and processes, and continuously makes improvements in order to completely eliminate potential risks. The Company also reviews its system for safety management during changes, examining it for completeness and to determine whether evaluation standards need improvement. In light of serious accidents caused by explosions and fires at other companies' chemical plants in recent years, Tokuyama has begun revising its risk assessment methods to take into account periods when its plants are offline (including during abnormal conditions).

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.

Fiscal 2013 Company-wide Safety Management Policy

Basic Approach to Safety

Recognizing that safety is the basis for its business activities, Tokuyama practices safety as the first step toward maintaining good relations with the communities in which it operates.

Our Three Safety Principles

Safety for the community
We shall fulfill the obligations of a good corporate citizen.

Prioritizing safety
We shall give safety priority over all business activities.

Responsibility for safety
We shall ensure that everyone is aware of their responsibilities and acts accordingly.

Policy Objectives

The objectives of the Safety Management Policy are to nurture and enhance a workplace culture of safety in order to operate without any accidents or disasters, and to ensure the safety of facilities and people both onsite and in the community.

Key Action Items

Improve safety management systems
- Enhance risk assessments by reporting on near-miss accidents
- Enhance safety management during changes
- Utilize and share safety-related information

Make progress in risk management and hazard management
- Incorporate a business continuity plan (BCP) based on the scenario of a major earthquake in Tokyo
- Establish a company-wide BCP to respond to a major earthquake or tsunami at the Tokuyama Factory

Promote sound physical and mental health

Tokuyama Factory

Location: 1-1, Mikage-cho, Shunan City, Yamaguchi 745-8648, Japan
Number of employees: 1,609
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

Hideki Adachi
Tokuyama Factory General Manager

As Tokuyama's main production center, the Tokuyama Factory is located on the site of the Company's founding and now manufactures products accounting for about 90% of non-consolidated sales.

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
SOx emissions Metric tons	metric tons	1,300	1,630	2,180	1,450	750
NOx emissions	metric tons	8,800	8,000	8,600	8,400	9,200
Soot emissions	metric tons	137	148	191	190	174
Industrial water consumption	Million metric tons	41.8	40.5	43.8	41.3	42.2
Effluent discharged	Million metric tons	20.5	25.5	24.2	24.8	22.1
COD level	metric tons	107	124	119	119	132
Total nitrogen discharged	metric tons	140	110	108	94	70
Total phosphorous discharged	metric tons	3.6	2.3	2.8	2.7	2.4
PRTR-designated substance emissions	metric tons	48	37	32	39	33
Waste generated	Thousand metric tons	300	312	379	381	395
Waste sent to landfills	metric tons	420	417	490	320	277
Energy consumption*	Thousand gigajoules	50,600	49,800	52,400	44,100	43,700
CO_2 emissions* (originating from fossil fuel)	Thousand metric tons	4,570	4,510	4730	4020	4020
Complaints	Cases	1	5	3	0	1

* 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 2013

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

Substance name	Regulatory number	Amount of emissions				Amount transferred
		Atmospheric	Water	Soil	Subtotal	
1,2-Dichloroethane	157	9.7	0.0	0.0	9.7	1.0
Chloroethylene (vinyl chloride)	94	9.3	0.0	0.0	9.3	0.0
Cresol	86	0.0	3.6	0.0	3.6	0.0
Chloromethane (methyl chloride)	128	3.5	0.0	0.0	3.5	0.0
Toluene	300	1.9	0.0	0.0	1.9	40.2
Water-soluble compounds of zinc	1	0.0	1.8	0.0	1.8	0.0
Dichloromethane (methylene chloride)	186	1.5	0.0	0.0	1.5	0.0
Chloroform	127	1.1	0.0	0.0	1.1	0.0
1,2-Epoxypropane (propylene oxide)	68	0.5	0.0	0.0	0.5	2.4
1,2-Dichloropropane	178	0.4	0.0	0.0	0.4	191.6
Carbon tetrachloride	149	0.1	0.0	0.0	0.1	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	2.9
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	0.1
Dioxins	243	12.8	20.8	0.0	33.7	0.0
Total (excluding dioxins)		28.0	5.4	0.0	33.3	238.1

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

Kashima Factory

Location: 26 Sunayama, Kamisu City, Ibaraki 314-0255, Japan
Number of employees: 83
Total site area: 101,000 m²
Main products: ***Produced by Tokuyama Corporation:*** Bulk pharmaceuticals for stomach and duodenal ulcer treatment drugs; optical materials (plastic lens monomer, light modulating materials, and hard coating solutions); raw materials for electronic materials; metal cleaning solvents
Produced by Tokuyama Dental Corporation: Dental materials (restorative materials, adhesives, relining materials, impression materials and investment materials)

Fumiaki Iwasaki
Kashima Factory General Manager

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 81% effective utilization rate of waste in fiscal 2013, maintaining the high recycling rate achieved in the previous fiscal year. 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. Waste sent to landfills for final disposal amounted to seven metric tons, matching the record-low level set in the previous fiscal year. Consequently, the Company achieved its "zero emissions" target of 99.9%. Meanwhile, Tokuyama Dental Corporation modified the operating conditions of treatment equipment to eliminate handling in certain processes in an effort to reduce its atmospheric emissions of exhaust gases. Consequently, its share of total atmospheric emissions from the factory fell from 50% in the previous fiscal year to 20% in fiscal 2013.

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
Industrial water consumption	Thousand metric tons	44	77	71	76	51
Effluent discharged	Thousand metric tons	58	93	90	96	66
COD level	metric tons	2	4	4	4	3
PRTR-designated substance emissions	metric tons	4	2	2	1	2
Waste generated	metric tons	560	857	909	930	919
Waste sent to landfills	metric tons	11	12	7	7	7
Energy consumption*	Thousand gigajoules	53	60	57	59	36
CO_2 emissions*	metric tons	2,110	2,340	2,324	2,399	2,476
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 2013

Unit: metric tons

Substance name	Regulatory number	Amount of emissions				Amount transferred
		Atmospheric	Water	Soil	Subtotal	
Chloroform	127	0.8	0.4	0.0	1.3	12.7
Toluene	300	0.4	0.0	0.0	0.5	12.4
Dichloromethane	186	0.4	0.0	0.0	0.4	1.9
Acetonitrile	13	0.0	0.0	0.0	0.0	2.2
α-Methylstyrene	149	0.0	0.0	0.0	0.0	0.0
1,4-Dioxane	150	0.0	0.0	0.0	0.0	0.0
N,N-Dimethylacetamide	213	0.0	0.0	0.0	0.0	3.8
N,N-Dimethylformamide	232	0.0	0.0	0.0	0.0	10.8
Triethylamine	277	0.0	0.0	0.0	0.0	1.0
2-Vinylpyridine	338	0.0	0.0	0.0	0.0	0.3
Methacrylic acid 2,3-Epoxypropyl	417	0.0	0.0	0.0	0.0	0.0
Total		1.7	0.5	0.0	2.2	45.2

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

Tokuyama believes that its group companies should be involved in tackling the issues covered by Responsible Care activities. Accordingly, it has concluded a Responsible Care Management Agreement with its manufacturing subsidiaries in Japan and worldwide, and it is providing them with assistance to carry out these activities. The Company collects data from group companies on their environmental impact, safety management, and other indicators, and conducts safety, environmental, and quality audits every year at several subsidiaries. In this way, Tokuyama is closely following the Responsible Care activities at each company and ensuring their completeness. Tokuyama also shares news on regulatory trends and other relevant information with its group companies, and helps them acquire ISO 9001 and ISO 14001 certification.

11 Group Companies with ISO 9001 and/or ISO 14001 Certification

Group Company	ISO9001	ISO14001
Sun-Tox Co., Ltd.	●	●
Excel Shanon Corporation	●	—
Tohoku Shanon Corporation	●	●
A&T Corporation	●*	●
Figaro Engineering Inc.	●	—
Tokuyama Dental Corporation	—*	●

Group Company	ISO9001	ISO14001
Tokuyama Siltech Co., Ltd.	●	●
Sun Arrow Kasei Co., Ltd.	—	●
ASTOM Corporation	●	●
Shin Dai-ichi Vinyl Corporation	—	●
Tokuyama Polypropylene Co., Ltd.	●	●

● = Acquired certification ● = Certification acquired by a worksite of the group company
* = Acquired ISO 13485 certification

Sun·Tox Co., Ltd.

Established: February 14, 1992
Shareholder: Tokuyama Corporation (100%)

Head office: Tokuyama Building, 1-4-5 Nishi-shimbashi, Minato-ku, Tokyo, Japan
Business activities: Manufacture and sale of biaxial-oriented polypropylene films and cast polypropylene films

Kanto Plant

Kazunori Shimada
Plant Manager

Sun·Tox's Kanto Plant is located in an industrial park in the City of Itako, Ibaraki Prefecture. The plant manufactures biaxial-oriented polypropylene films and cast polypropylene films, which are used for food packaging and other applications, totaling about 25,000 metric tons annually.

As a factory that gives first priority to energy conservation management, the Kanto Plant has established an energy conservation committee, sets medium- and long-term goals, and strives to cut down on its overall energy consumption on a per-unit basis. The plant also works to effectively use resources by reducing and recycling waste matter, and is achieving steady results. As it continues to implement three management systems covering occupational health and safety (based on Japan's OSHMS certification), the environment (based on ISO 14001), and quality (based on ISO 9001), the Kanto Plant is building on its achievements with the aim to be a community-based factory trusted in society.

Location: 3075-18 Shimasu, Itako City, Ibaraki, Japan
Number of employees: 187
Total site area: 55,800 m^2

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
Waste generated	metric tons	43	56	57	26	15
Waste sent to landfills	metric tons	16	38	43	7	4
Energy consumption	Thousand gigajoules	334	344	341	340	360
CO_2 emissions	Thousand metric tons	18	19	19	19	20
SOx emissions	metric tons	0.3	0.3	0.4	0.3	0.2
NOx emissions	metric tons	0.5	0.6	0.7	0.6	0.7
Soot emissions	metric tons	0.05	0.04	0.04	0.03	0.06

Tokuyama Plant

Naoki Ueda
Plant Manager

Sun·Tox's Tokuyama Plant situated on the site of the East Plant of Tokuyama Corporation's Tokuyama Factory. The 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, Sun·Tox is actively working to reduce production loss and increase its recycling rate in an effort to cut down on the waste it generates going forward. With respect to safety, it has acquired Occupational Safety and Health Management System (OSHMS) certification from the Japan Industrial Safety and Health Association in 2008. 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.

Location: 7-7, Harumi-cho, Shunan City, Yamaguchi
Number of employees: 133
Total site area: 24,100 m^2

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
Waste generated	metric tons	90	80	70	67	66
Waste sent to landfills	metric tons	6	9	1	2	2
Energy consumption	Thousand gigajoules	414	434	448	445	463
CO_2 emissions	Thousand metric tons	25	26	26	26	27
PRTR-designated substance emissions	metric tons	0.1	0.1	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: Nakanoshima Central Tower, 2-2-7 Nakanoshima, Kita-ku, Osaka, Japan
Business activities: Manufacture and sale of polyvinyl chloride compounds

Tokuyama Plant

Yasuto Yasuzawa
Plant Manager

Operating on the site of the East Plant of the Tokuyama Factory of Tokuyama Corporation, Sun Arrow Kasei's Tokuyama Plant manufactures 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 promotes ISO 14001 environmental management, and makes proactive initiatives to reduce the use of substances listed in the Pollutant Release and Transfer Register (PRTR), in particular. In fiscal 2013, it reduced the use of these substances by 40% compared to the previous fiscal year.

To ensure safety and prevent accidents, the Tokuyama Plant has all employees participate in activities designed to eliminate problems, identify near-miss situations, and practice the 5S principles. Owing to this approach, the company has maintained an accident- and disaster-free record since it was established.

In fiscal 2014, the plant intends to strictly enforce internal controls while carrying out Responsible Care activities based on a safety-first policy for all operations.

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

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
Power consumption	Thousand kilowatt hours	2,662	2,735	2,763	2,455	2,562
Waste plastic produced	metric tons	119	124	110	107	125
Waste plastic effectively used	metric tons	119	124	110	107	124
Waste sent to landfills offsite for disposal	metric tons	3.8	12.5	10	15	7
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 City, Yamaguchi, Japan
Business activities: Manufacture and sale of polypropylene resin and flexible polypropylene resin

Tokuyama Plant

Hiroaki Endo
Plant Manager

Tokuyama Polypropylene's Tokuyama Plant is located on the site of the East Plant of Tokuyama Corporation's Tokuyama Factory, which is the center of the Tokuyama Group's Responsible Care activities. As part of its safety management, the company carries out measures to identify near-miss situations and points of concern, and conducts risk assessments in its processes, facilities, and production. The company has maintained a perfect accident- and disaster-free record since the time it was first established as Tokuyama's polypropylene film business 38 years ago.

The plant is preparing for the renewal of 15 certifications that are due in fiscal 2014. At the same time, the Tokuyama Plant is promoting Responsible Care activities with the goals of extending its accident- and disaster-free record, reducing its environmental burden, and eliminating customer complaints related to quality.

Location: 7-7, Harumi-cho, Shunan City, Yamaguchi
Number of employees: 133
Total site area: 24,100 m^2

Performance Data

	Unit	FY2009	FY2010	FY2011	FY2012	FY2013
Industrial water consumption	Thousand metric tons	354	329	366	343	411
Waste generated	metric tons	134	180	123	160	116
Waste sent to landfills	metric tons	6.5	3.8*	0	1.9*	15
Unit Energy Consumption Index (Fiscal 2002=100)	%	97	86	88	88	84

* Year with periodic maintenance

Environmental Data for Tokuyama

Input (Unit: 1,000 metric tons)	FY2009	FY2010	FY2011	FY2012	FY2013	Comparison with the previous fiscal year (%)
Waste and by-products	1,630	1,500	1,680	1,780	1,945	9.3%
Fuel	2,120	2,020	2,270	2,150	1,760	-18.1%
Raw materials	5,910	5,390	5,880	5,650	6,080	7.6%
Industrial water	41,800	40,500	43,900	41,300	42,200	2.2%
Output (Unit: 1,000 metric tons)	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**Comparison with the previous fiscal year (%)**
Carbon dioxide	6,420	6,170	6,510	5,800	5,930	2.2%
Waste (incinerated and landfill)	19	20	21	20	21	5.0%
Substances with environmental impact	10	10	11	10	10	0%
Process effluent	20,600	25,600	24,300	24,900	22,100	-11.2%

Emissions of SOx, NOx, and Soot

Unit: Metric tons	FY2009	FY2010	FY2011	FY2012	FY2013	Comparison with the previous fiscal year (%)
SOx	1,300	1,630	2,180	1,450	750	-48.3%
NOx	8,800	8,000	8,600	8,400	9,200	9.5%
Soot	137	148	191	190	174	-8.4%

Discharge of Nitrogen and Phosphorous

Unit: Metric tons	FY2009	FY2010	FY2011	FY2012	FY2013	Comparison with the previous fiscal year (%)
Nitrogen	140	110	108	94	70	-25.5%
Phosphorous	3.6	2.3	2.8	2.7	2.4	-11.1%

Waste Management

Unit: 1,000 metric tons	FY2009	FY2010	FY2011	FY2012	FY2013	Comparison with the previous fiscal year (%)
Waste recycled in-house	260	271	331	337	350	3.9%
Waste recycled externally	20.8	21.1	27.3	25.0	24.5	-2.0%
Incinerated waste	18.9	20	21	19.7	20.5	4.1%
Waste sent to landfills	0.4	0.4	0.5	0.3	0.3	0%

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

* Figures are calculated using a standard conversion method for products recommended by the Japan Chemical Industry Association (JCIA)

Unit: %	Base year (1990)	FY2009	FY2010	FY2011	FY2012	FY2013
Percentage reduced	0	-22.4	-24.6	-24.2	-21.8	-20.6

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

Unit: kg per metric ton of cement	Base year (1991)	FY2009	FY2010	FY2011	FY2012	FY2013
Amount used	227	414	430	446	458	461

Material and Thermal Recycling Amounts in Cement Production

Unit: 1,000 metric tons	Base year (1991)	FY2009	FY2010	FY2011	FY2012	FY2013
Material recycling	1,550	1,561	1,430	1,610	1,730	1,879
Thermal recycling	4	70	67	70	54	66

Energy Consumption

Unit: 1,000 gigajoules	Base year (1990)	FY2009	FY2010	FY2011	FY2012	FY2013
Tokuyama Corporation	37,600	50,700	49,900	52,500	44200	43,700
Group companies	—	2,700	2,800	2,800	2,600	2,800

Emissions of CO_2

Unit: 1,000 metric tons	Base year (1990)	FY2009	FY2010	FY2011	FY2012	FY2013
Originating from fuel	3,290	4,570	4,510	4,730	4020	4,020
Originating from raw materials	1,930	1,620	1,420	1,550	1570	1,680
Originating from waste matter	20	230	240	230	210	230
Group companies		200	200	210	190	200

* Figures are calculated using a standard conversion method for products recommended by the Japan Chemical Industry Association (JCIA)

Emissions of PRTR-Designated Substances*

Unit: Metric tons	Base year (1998)	FY2009	FY2010	FY2011	FY2012	FY2013
Tokuyama Corporation	237	50	38	34	40	35
Group companies		29	39	40	41	39

Emissions of Hazardous Air Pollutants

Unit: Metric tons	Base year (1995)	FY2009	FY2010	FY2011	FY2012	FY2013
Dichloromethane (methylene chloride)	28	2	3	1	3	2
Chloroform	7	3	1	1	3	2
1,2-Dichloropropane	47	9	10	8	10	10
Chloroethylene (vinyl chloride)	21	8	10	11	11	9

Discharge of Industrial Effluent and Levels of COD

	Base year (1990)	FY2009	FY2010	FY2011	FY2012	FY2013
Industrial effluent (million metric tons)	14.3	20.6	25.6	24.3	24.9	22.1
COD (metric tons)	180	109	128	123	123	134

Breakdown of Waste Treatment Methods

Unit: 1,000 metric tons	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Waste recycled in-house	304	260	271	331	337	350
Waste recycled externally	20.5	20.8	21.1	27.3	25	24.5
Incinerated waste	20	18.9	20	21	19.7	20.5
Waste sent to landfills	0.5	0.4	0.4	0.5	0.5	0.3
Total waste generated	345	300	313	380	382	396

Landfilled and Recycled Waste

	Base year (1990)	FY2009	FY2010	FY2011	FY2012	FY2013
Landfilled waste (1,000 metric tons)	36,260	440	430	500	330	280
Effective utilization rate (%)	77	93.5	93.5	94.4	94.7	94.7
"Zero emissions" rate (%)	82	99.9	99.9	99.9	99.9	99.9

A Review of Tokuyama's *CSR Report and Corporate Profile 2014*

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

>> Tokuyama is reinforcing its business foundations in the run-up to its 100th anniversary

In this year's report, Tokuyama positioned its Profit Improvement Plan at the base of its Centennial Vision pyramid concept. With this framework for supporting its basic strategies, Tokuyama seems very intent on renewing and stabilizing its business foundations ahead of 2018, the year of the company's 100th anniversary. As Tokuyama pursues its Centennial Vision amid rapidly changing business conditions, I hope that it continues to help make society more sustainable by serving as a company that responds to the needs of the public, and constantly evolves its business activities in response to the changing business environment while staying true to its credo of "Venture Spirit & Innovation."

>> Safety and stability with "Venture Spirit & Innovation"

One of Tokuyama's business foundations is its remarkably safe, stable operations at production facilities, as described in the first special feature. This section presented the company's efforts to ensure safety and reliability at the Tokuyama Factory, which has continued to expand as a massive complex on the original site where the company began. Demonstrating how human resources are developed at Tokuyama, the section describes how trust is earned by building on small achievements and passed down to younger workers.

The second special feature shows how the development of a scintillator material for high-performance neutron detectors is related to solutions for new social problems. Through the application of Tokuyama's new technologies, these detectors are expected to change the way security is conducted. The company's approach of preserving and passing down its beneficial traditions from the past while developing new systems for society provides a solid basis for practicing CSR-oriented management. I believe Tokuyama can play an important social role in this way.

>> Environmental conservation

The online PDF version of the report presents extensive performance data connected to Tokuyama's environmental conservation activities, and clearly shows that the company is making steady progress on its related targets. Its main facility, the Tokuyama Factory complex, is fully integrating waste treatment and recycling, and managing inflows and outflows in a comprehensive manner with neighboring companies and the local government. In this way, the factory is working to achieve a considerably low impact on the environment relative to its scale of operations by putting in place a highly efficient production system. This is highly commendable. In the future, Tokuyama should extend this approach to affiliated companies in other regions and to its factories outside Japan, and develop highly efficient production facilities in each location.

On another note, the amount of performance data presented in the report was quite large. For that reason, it was difficult to determine which items were of greatest priority for the company.

If Tokuyama were to specify priority items from two perspectives, specifically their importance for the company and importance for society, and use indicators that clearly show the level of progress being made, I think it could create a clearer way to present progress. I look forward to learning more about each step Tokuyama takes toward its Centennial Vision.

In Response to Third-party Review

Toshihiko Annaka

Executive Officer, and General Manager, Corporate Social Responsibility Division

We have been combining our CSR Report and Corporate Profile since fiscal 2013. For our report this year, we tried to clearly present Tokuyama's aims and the basis for pursuing our targets, hoping to stimulate greater interest in the Company among stakeholders and provide them with an accurate description of our activities and results. As Ms. Nashioka mentioned, 2018 marks an important year for us as our 100th anniversary. In preparation, Tokuyama is aiming to transform its business structure to enable continuous growth by applying its "Venture Spirit & Innovation."

We created a special feature in the report about Tokuyama's long-established traditions and safety training initiatives in order to show how we pass on the trust we have built up to younger workers and how we develop human resources. As Ms. Nashioka noted, this section offers readers insights into Tokuyama's approach.

We also presented environmental conservation activities with a focus on waste treatment and recycling initiatives taken at the Tokuyama Factory. As pointed out by Ms. Nashioka, however, we need to introduce and expand our activities group-wide to other factories, group companies and subsidiaries overseas in the future.

Finally, we will try to present performance data in a way that more clearly shows which items are of highest priority, taking into account Ms. Nashioka's suggestion.