

# UBE Group CSR Report 2015



Focusing on Harmonious Coexistence with All Stakeholders



**UBE INDUSTRIES, LTD.**

# Pharmaceuticals

The UBE Group boasts superior organic and chemical synthesis technologies born out of its management philosophy "Creating industries with infinite possibilities from the finite resources of coal." These technologies are used to develop not only materials for the automotive and electronics fields, but pharmaceuticals. Our business in this field consists of two main components: 1) drug discovery, which explores candidate compounds for development into new drugs, and 2) the manufacturing of active pharmaceutical ingredients. Through these operations, we are contributing to the treatment of patients around the world in collaboration with pharmaceutical companies.

## *Studying Substances.*

### **The History of the Pharmaceutical Business**

Product manufacturing is the core of UBE's business. Over the years, UBE has built up and handed down an organic and chemical synthesis technology platform along with the expertise to put it to use. As a chemical manufacturer, UBE produces various materials and technologies that solve problems facing society. Among them, drugs are the ultimate embodiment of this because they directly help people maintain their health and welfare.

In the mid-1960s, researchers from our laboratory were studying new agrochemicals at a university. Some compounds discovered by the researchers there seemed promising for applications in medicine, and UBE began collaborative drug discovery research with a major Japanese pharmaceutical company in the 1970s.

At the time, it was said that a chemical company should not get involved in the pharmaceutical business. UBE, however, had a particular strength in

drug discovery due to both its high-level capacity to synthesize substances using its accumulated organic synthesis technologies and its biological evaluation capabilities. Using these capabilities, researchers at UBE made progress thanks to their perseverance and persistence. On top of this, of course, UBE had outstanding product manufacturing expertise. And so the quest of UBE's drug discovery researchers to find the building blocks for new medicines began.

### **UBE's Drug Discovery and Manufacturing**

Pharmaceutical research and development generally proceeds through the following stages: 1) the "Drug Discovery Stage," in which candidate compounds for development are generated (2 to 3 years); 2) the "Preclinical Trial Stage," in which the efficacy and safety of candidate compounds are



# Developing drugs.

evaluated in line with relevant guidelines (3 to 5 years); 3) the “Clinical Trial Stage,” with healthy volunteers and/or patients, in which the efficacy and safety of investigational drugs are evaluated in three phases; 4) the “Evaluation/Review Stage,” in which approval to manufacture and market the drug is obtained from the competent authorities (in Japan, the Ministry of Health, Labour and Welfare, 1 to 2 years); and 5) the “Marketing” and GMP-compliant “Manufacturing” stages following approval. Thus, the research and development for a new drug takes 10 to 15 years as well as immense R&D investment in the tens of billions, or, sometimes, over a hundred billion yen.

UBE’s pharmaceutical business specializes in two areas: drug discovery, as described above, and the manufacturing of active pharmaceutical ingredients (APIs) and/or intermediates including for supply to pharmaceutical companies, and also for generics. In terms of drug discovery, UBE has

developed and brought such products to market as the anti-allergy agent *Talion*, (marketed by Mitsubishi Tanabe Pharma), antihypertensive agents *Calblock* and *Rezaltas* (marketed by Daiichi Sankyo), and the antiplatelet agent *Effient/Efient* (marketed by Daiichi Sankyo and Eli Lilly). These four drugs are now being used to help treat patients. In terms of manufacturing APIs and intermediates, UBE has built an excellent reputation for strength in developing processes for specific substances that leverage its organic synthesis technologies as well as its stable manufacturing base, which meets the strict quality requirements of global pharmaceutical manufacturers.

\* GMP (Good manufacturing practices): Management standards applying to such activities as the manufacture and quality control of pharmaceuticals and certain other products. Originally adopted by the U.S. Food and Drug Administration (FDA), such standards are now used in Japan and other countries, and efforts aimed at global harmonization are underway.

The Evolution of UBE's Pharmaceutical Business



1980s

- 1980 : • No. 1 multi-purpose plant is completed (manufacturing intermediates)
- Research collaboration on pharmaceuticals with a pharmaceutical company begins
- 1983 : • The Pharmaceutical Research Group is launched at UBE Laboratories
- 1988 : • Antihypertensive agent *Calblock* is the first product to enter clinical trials as an outcome of UBE's drug discovery

1990s

- 1990 : • A plant for active pharmaceutical ingredients (now pilot plant for investigational drug substances) is completed at the Ube Chemical Factory; contract manufacturing of active pharmaceutical ingredients and intermediates begins
- 1993 : • An active pharmaceutical ingredient contracted from a Japanese pharmaceutical company is approved, full-scale supply begins
- 1995 : • No. 1 API Plant is completed
- 1998 : • No. 2 API Plant is completed
- Pharmaceutical Product Department is launched at the Ube Chemical Factory

2000s

- 2000 : • Anti-allergy agent *Talion* is approved and launched
- 2001 : • Pharmaceutical Product Business Unit is launched
- Pharmaceutical Development Center at Ube API & Intermediates Factory is launched
- 2002 : • UBE API & Intermediates Factory passes FDA (the U.S. Food and Drug Administration) pre-approval inspection for the contract production of an intermediate
- 2003 : • No. 3 API Plant is completed
- *Calblock* is approved and launched
- 2008 : • UBE API & Intermediates Factory passes FDA pre-approval inspections for *Effient*
- 2009 : • Antiplatelet agent *Effient/Efient* is approved and launched Pharmaceutical Division and in Europe and the United States

2010s

- 2010 : • Pharmaceutical Division and Pharma Quality Assurance Department are launched
- *Rezaltas* is approved and launched
- 2011 : • No. 4 API Plant is completed
- 2012 : • DE-117, for the treatment of glaucoma, enters clinical trials (co-development with Santen Pharmaceutical)
- 2014 : • *Effient* is approved and launched in Japan

UBE's Drug Discovery : Investigating New Drug Development Candidates

UBE's drug discovery is broadly divided into research conducted independently by UBE and joint research advanced in collaboration with pharmaceutical companies. In its independent drug discovery, UBE aims to commercialize its compounds as new drugs by licensing them out from the early stages of preclinical trials to pharmaceutical companies worldwide. In its collaborative research, UBE advances R&D in intimate coordination with partners.

Steps of Drug Discovery at UBE

Drug discovery is divided into the following steps: 1) proposal and adoption of a research theme, 2) research cycle (a repeated PDCA cycle\* of compound design ► synthesis ► efficacy and safety evaluation), and 3) selection of a group of compounds by screening and determination of development candidates.

1. Proposal and Adoption of a Research Theme

Because new drug development takes a great deal of time, research themes are set and target compounds decided based on expectations of unmet medical needs 10 to 15 years in the future with reference to such factors as trends in pharmaceutical companies' needs and surveys of available literature.

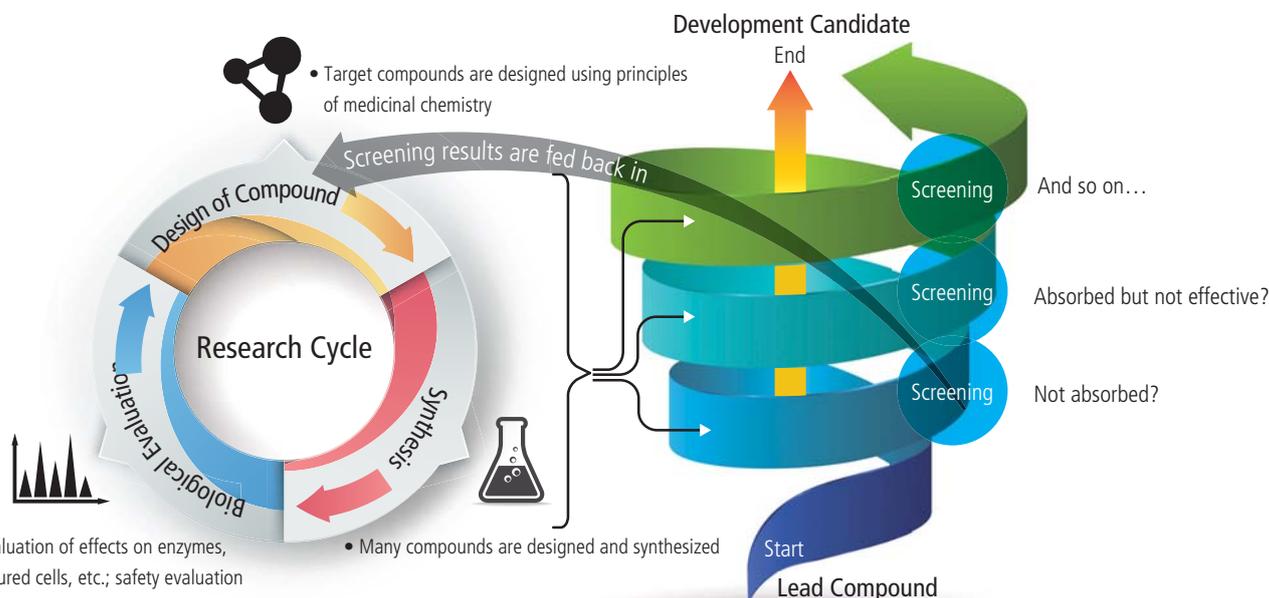
2. Research Cycle (compound design ► synthesis ► efficacy and safety evaluation)

Drawing on insights from medicinal chemistry and their own experience and expertise, researchers begin their work by trying to identify molecules with chemical structures that offer the greatest efficacies. Molecules are further designed in consideration of safety before being actually synthesized.

3. Selection of a Series of Compounds by Screening

Synthesized compounds are handed off to researchers responsible for biological evaluation. Based on the data gleaned from various efficacy evaluations, compounds are screened out rapidly and steadily to find the most promising compounds.

By repeating this research cycle, researchers elucidate the relationships between each compound's structure and action (the structure-activity relationship) and receive feedback indicating, for example, whether the





compound is systemically absorbed, and, if so, whether it acts on the target organ. Using such feedback, researchers continue to spiral up the research cycle, progressing toward safer, more effective development candidates.

\*A method to facilitate management operations, such as production and quality management, in the course of business activities.

### **The Pharmaceuticals Research Laboratory —Striving for efficient drug discovery**

Competition in new drug R&D is expected to become more challenging worldwide. UBE's Pharmaceuticals Research Laboratory uses the criteria of "High Probability of Success" and "High Value" to surpass its competitors by honing the advantages derived from its compact organization, namely the research agility that it brings to new drug discovery.

### **Manufacturing Active Drug Ingredients**

Including pilot plant for producing investigational drugs, the UBE API & Intermediates Factory comprises six buildings. Here, UBE manufactures pharmaceuticals developed by the Group while also engaging in the contract manufacturing of active ingredients and intermediates for other drug companies. Contract manufacturing encompasses a wide range of products, from approved active ingredients and intermediates to compounds that are in clinical trials. Drawing on its strength in organic synthesis technologies and abundant expertise, UBE has built an excellent reputation among pharmaceutical companies for proposing optimal production methods. Today, many pharmaceutical companies do not maintain drug manufacturing plants. Particularly in recent years, an ever greater number are focusing their management capital on R&D and choosing to outsource production. Such companies have many specific requirements regarding production, including stringent standards for quality, production stability and cost. Thanks to our wide-ranging expertise in five business segments—namely, the Chemicals, Pharmaceutical, Cement & Construction Materials, Machinery & Metal Products, and Energy & Environment segments—we excel in the development of industrial manufacturing processes for drugs.

As UBE advances drug discovery and contract manufacturing, it can draw strength from its particular insight and expertise regarding the efficient, low-cost production of pharmaceutical active ingredients and intermediates.

### **The UBE API & Intermediates Factory—Dedicated to Stable Quality**

From the start, the UBE API & Intermediates Factory has been set up to utilize gravity-powered flows in order to prevent contamination. Within the buildings that house them, the facilities for raw ingredient input, reactors, centrifuges and filtration machines, driers, and packaging and filling are arranged in order of use from the uppermost floor downward. In recent years, this design concept has become more commonplace, especially in new factories in China, but UBE introduced it ahead of the curve. Utilizing gravity flow makes it easier to move materials from one process to the next while avoiding exposure to the atmosphere, thus preventing contamination and facilitating the production of active ingredients and intermediates of stable quality.

Pharmaceutical manufacturing in Japan must be conducted in accordance with the manufacturing, quality, and hygiene management procedures specified by governmental Good Manufacturing Practice (GMP) ordinances. Manufacturing must follow the exact processes laid out in applications for approval, and if a more efficient production method is found later, another application must be approved before procedures can be changed. Major changes require a return to clinical trials. At UBE, we are dedicated to training factory operators. Under a GMP-compliant annual training plan, we provide training on such topics as machinery operation and cleaning as well as safety and environmental issues. We spend more time on these topics at this factory than even at our chemical factories to ensure the reliability of our pharmaceutical production. Recently, demand for manufacturing in proximity to target markets has begun to expand to the realm of contract production. Accordingly, we have fielded a number of requests from overseas pharmaceutical companies for local production. UBE is considering opportunities presented by such requests.

### **Contributing to Health through the Pharmaceutical Business**

As expressed by UBE's founding philosophy "creating industries with infinite possibilities from the finite resources of coal," UBE has always been highly focused on product manufacturing. Bringing to bear its strengths as a chemical manufacturer, UBE will continue to pursue innovation and take on new challenges to produce innovative pharmaceutical products that contribute to the health of people around the world.

# Automotive Components

Ranging from organic synthesis to inorganic synthesis  
and hybrids of the two,  
the UBE Group's synthesis technologies meet diverse manufacturing needs

## *Materials to Create the Future.*



All materials can be classified as organic or inorganic. Organic materials, often defined as having molecular structures with direct carbon-hydrogen bonds, combust when sufficiently heated under normal atmospheric conditions, releasing carbon dioxide and water. All other materials are inorganic. Inorganic materials include metallic and ceramic materials, glass, nitrides, carbides and a wide range of other substances. Some of UBE's mainstay products, such as concrete and cement, as well as such industrial chemicals as ammonia and sulfuric acid, fall into the inorganic category.

Incorporating both organic and inorganic materials, automobiles have evolved over the centuries to become an indispensable technology. With the advance of global motorization, functional demands regarding automobiles have also evolved. In addition to traditional requirements pertaining to performance, safety, design and comfort, products and materials that contribute to the global environment via weight reduction and reduced CO<sub>2</sub> emissions have grown in importance, gradually shaping the future of the industry.

Materials to create the future. In this special feature, we will take a look at some of the main materials that UBE is using to help create the future of automobiles.



# Engine-Related



Nylon 6

Intake manifold

## A Light, Tough Resin

### Used in Critical Automotive Safety Components

Nylon resins are among the most well-known and strongest engineering plastics.\*<sup>1</sup> UBE's nylon 6 features excellent resistance to heat as well as oils, solvents and other chemicals and is highly workable. It is used in critical safety components,\*<sup>2</sup> such as intake manifolds that carry air into engines' combustion chambers. Intake manifolds were once cast from aluminum. However, nylon 6 offers superior properties, including being extremely lightweight and having excellent workability, which facilitates smooth intake and thus significantly improves fuel efficiency. Accordingly, the use of nylon 6 is growing year by year. Thanks to its durability over long periods, even in extreme conditions with temperatures over 100°C, nylon 6 is also used in such components as engine covers, cylinder head covers, electric power steering gears and door mirror stays.

The UBE Group is the world's third largest producer of nylon 6 and its product enjoys a strong market reputation for excellent workability in injection and extrusion molding as well as high quality.

\*1. Engineering plastics are generally distinguished from general-use plastics by heat resistance to temperatures over 100°C, a mechanical strength of over 50 MPa and a flexural modulus of elasticity of over 2.4 GPa.

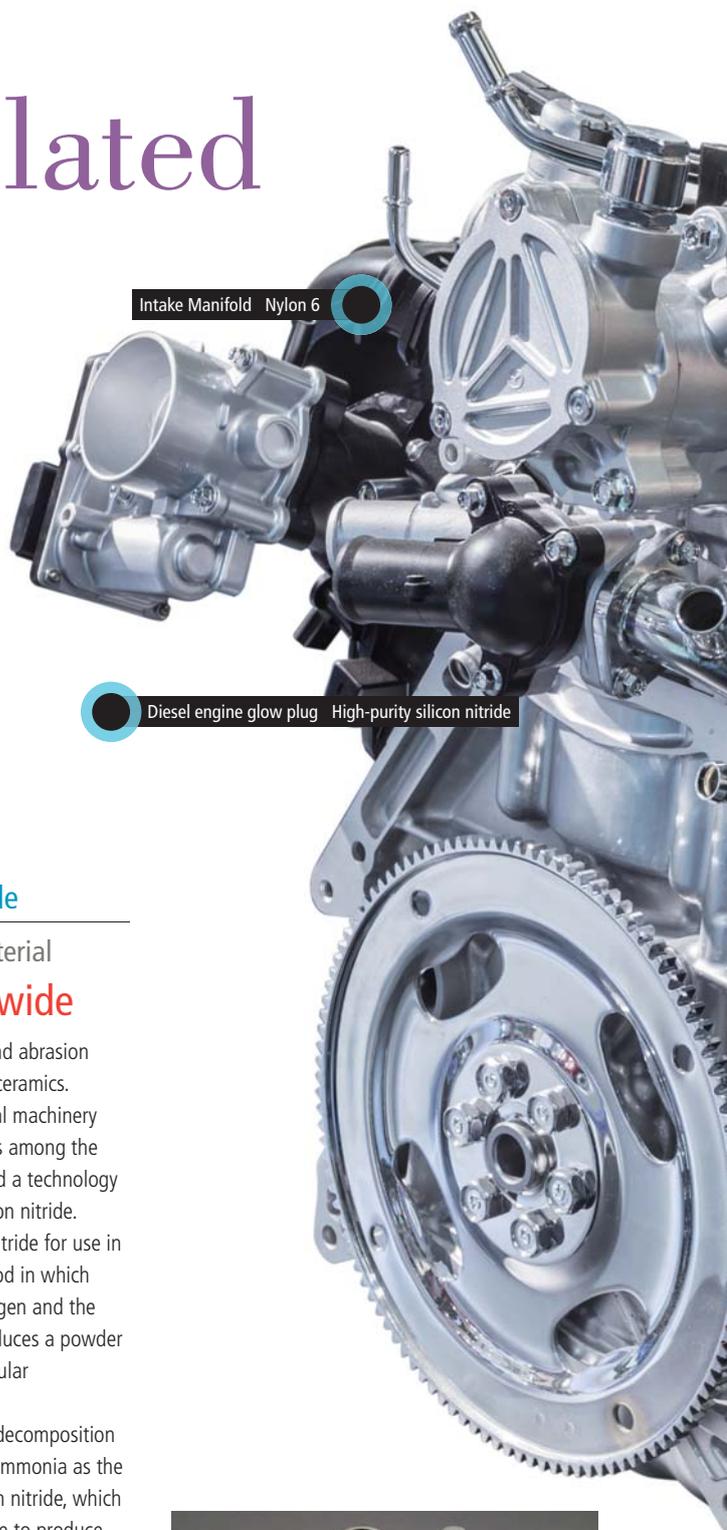
\*2. Critical safety components are the parts of mechanisms that can interfere with the automobile's basic functions of driving, steering or braking, or which can lead to serious failures and accidents (such as fires) should they fail.

## TYRANNO FIBER SiC Fiber

TYRANNO FIBER is a continuous ceramic fiber (SiC fiber) made from silicon and titanium or zirconium, carbon and oxygen. This fiber is used to make control system heat shields for F1 sports car engines. Because it is lighter than metal materials and offers excellent corrosion resistance, its use in the exhaust pipes of high-end cars is being explored.



Model exhaust pipe made using a TYRANNO FIBER composite



Intake Manifold Nylon 6

Diesel engine glow plug High-purity silicon nitride

## High-Purity Silicon Nitride

### A High-Purity Ceramic Material Recognized Worldwide

Boasting excellent thermal shock and abrasion resistance, silicon nitride is used in ceramics. Among its applications are industrial machinery and automotive components. UBE is among the first in the world to have established a technology for the industrial production of silicon nitride.

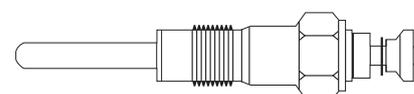
Other companies create silicon nitride for use in ceramics via a direct nitriding method in which metallic silicon is reacted with nitrogen and the product is then pulverized. This produces a powder with significant impurities and irregular particle size.

UBE's proprietary imide thermal decomposition production method uses SiCl<sub>4</sub> and ammonia as the inputs to produce amorphous silicon nitride, which is then heated to a high temperature to produce crystalline silicon nitride powder. This build-up process, which grows silicon nitride crystals, has the advantage of producing powder with highly regular particle size and extremely high purity. The high-end market, which has especially stringent quality requirements, uses mostly UBE's high-purity silicon nitride.

UBE's silicon nitride, which is recognized as a global standard, enjoys an excellent reputation among ceramics manufacturers worldwide. In automobiles, UBE's silicon nitride is used in glow plugs,\*<sup>3</sup> power module substrates for drive-trains in hybrid and electric vehicles, and bearing balls, and as a main ingredient in the fluorescent substances used in LEDs. It also has indirect applications related to automobiles, such as in the cutting tools used to produce the core parts of automobile and airplane engines.



Cutting tools, Bearing balls



\*3. Glow plugs are small prewarming heat plugs inside the combustion chambers of diesel engines used to prevent difficulty starting due to cold cylinder heads in cold weather.



# Interior and Exterior



Injection-molded door mirror  
"Kira-Kira Decoration," glittering overmolding  
(prototype)

## Injection Molding Machines (Ube Machinery Corporation, Ltd.\*)

### Injection Molding Machines Pioneering the Way Forward

Injection molding machines are used to make products from a variety of resins in a process that can be broken into the steps of melting, flowing and hardening. Products made using Ube Machinery Corporation's (UMC) injection molding machines are used in wide-ranging fields, including automobile and household electronics manufacturing.

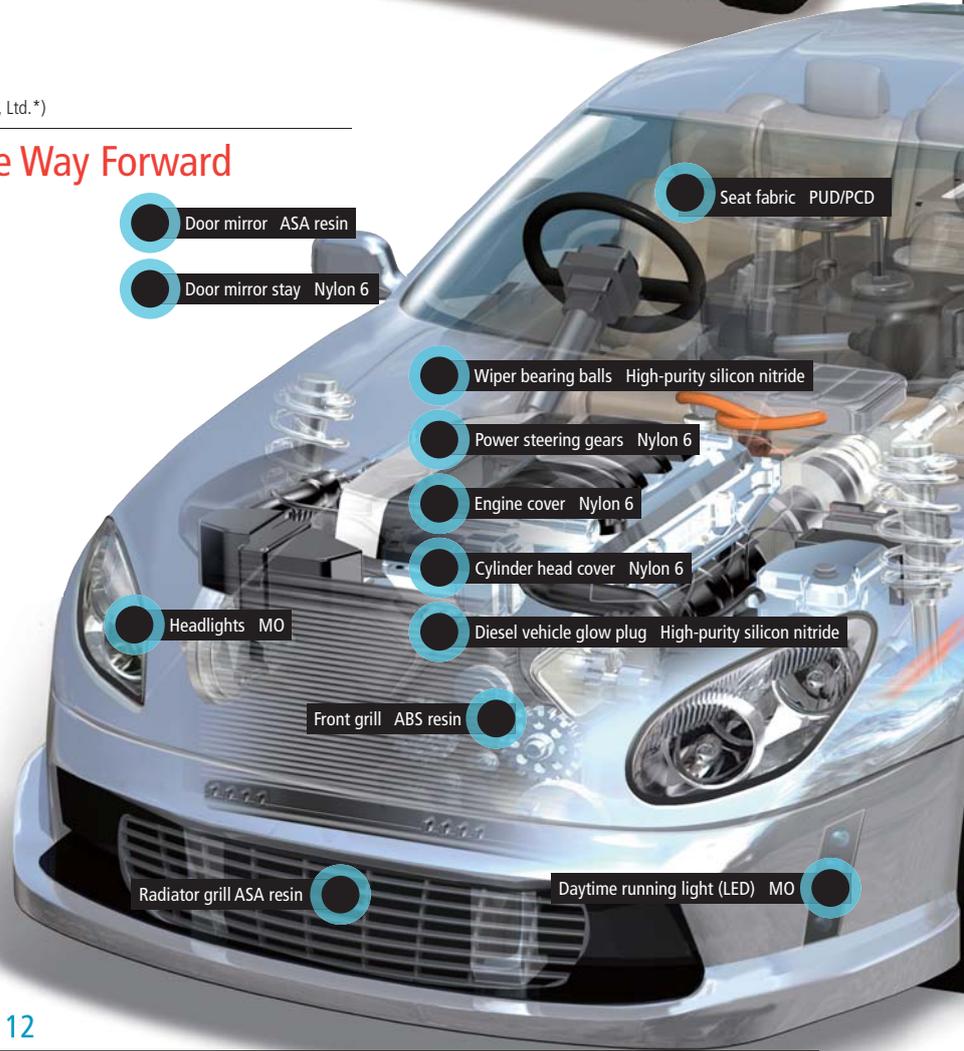
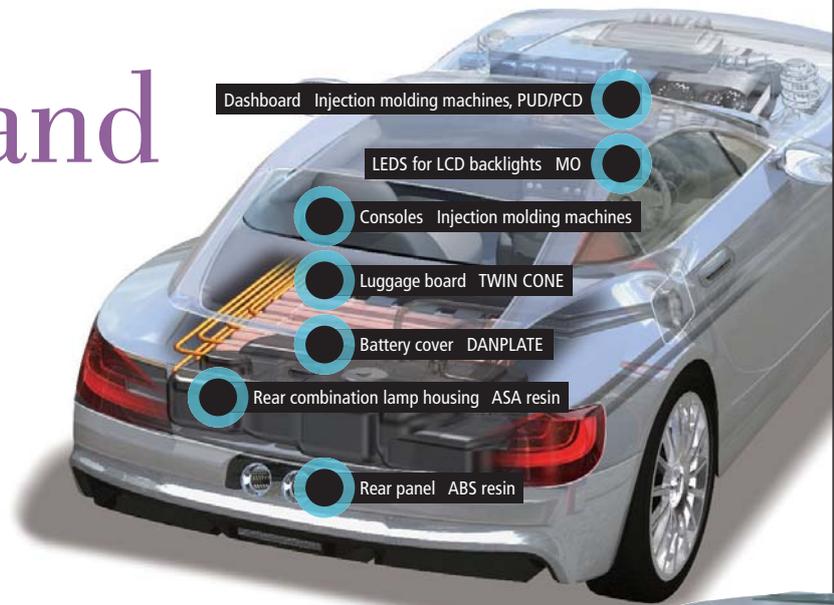
For automobile components, these machines use proprietary *DIEPREST* molding technology, which achieves weight reductions from 10% to more than 40% through foaming and by making components thinner. Furthermore, using laminate molding technologies that layer resins of different colors or materials in a single molded product, this technology allows the creation of high-performance products with "Kira-kira Decoration," a combination of transparent resins and glittering materials that yields sophisticated colors and finishes. UMC's injection molding machines are used to mold headlamp lenses, intake manifolds, door trim, bumpers and other automobile components, thus contributing to vehicle weight reduction.



Injection-molded door trim (prototype)

## MO

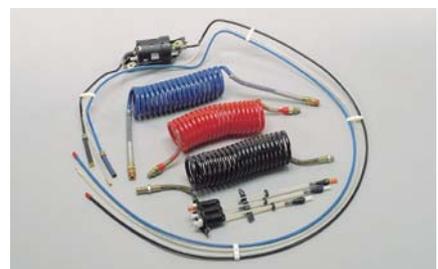
Metal organic compounds (MOs) are raw materials for the compound semiconductors used in LED lighting. UBE boasts a lineup of seven types of high-purity MOs.



## Nylon 12

### An Impact-Resistant Nylon Resin That Can Be Formed into Complex Shapes

Nylon 12 resin is produced by only four companies in the world. This resin has particularly excellent extrusion moldability and impact, weather and cold resistance. It is used mainly in fuel tubes and air brake tubes. Thanks to their impact and chemical resistance, which protect them from damage by rocks or snow-melting agents, the use of nylon 12 tubes is expanding, especially in Europe, where diesel vehicles are common.



Fuel and air tubes for automobiles

UMG ABS Resin, DIALAC ASA Resin (UMG ABS Ltd.)

A Balanced Resin with  
**“Three-in-One” Properties and High Workability**

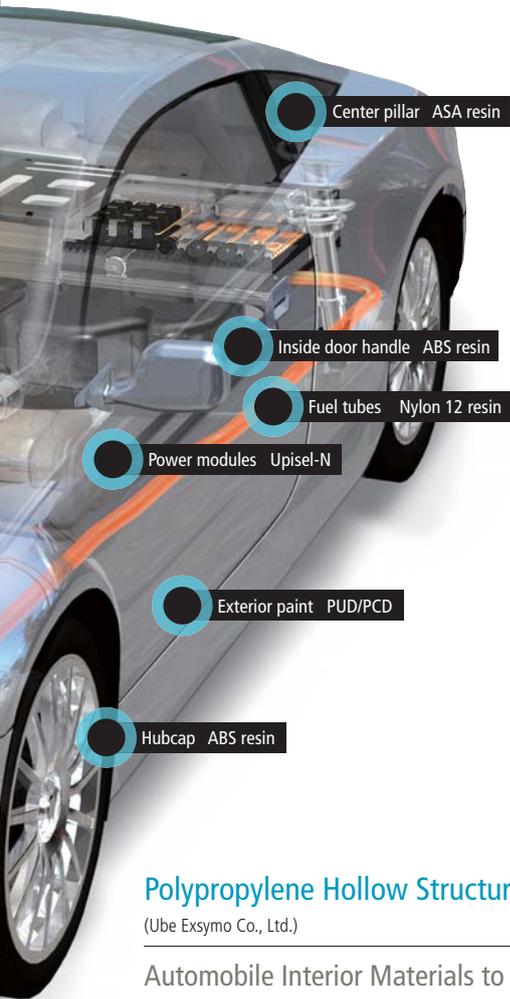
ABS resin is a plastic named for its three components: acrylonitrile, butadiene and styrene. ABS resin offers a balanced combination of the distinct properties of its components, including heat resistance, stiffness and impact resistance. The resin is glossy and is available in many colors, facilitating appealing design options. It is used in wide-ranging applications, from automobiles and OA devices to

household electronics and housing materials thanks to its excellent workability in injection or extrusion molding.

In automobiles, ABS resin is mainly used in plated products with high aesthetic requirements, such as manufacturers’ emblems, front grills, inside door handles, hubcaps and rear panels.



A similar resin, ASA resin, made with acrylic rubber instead of butadiene, is widely used in components that demand high durability, such as radiator grills, door mirrors, rear combination lamp housings, center pillars and antennae.



PUD/PCD

Coating Materials That Offer Durability and Beauty While

**Reducing VOC Use**

Polyurethane dispersion (PUD) is a material consisting of polyurethane resin particles of between 5 nm and 500 nm dispersed in water. It is used as the base resin for water-based paints and coatings as well as adhesives. These coatings are garnering attention as people- and Earth-friendly “eco-coatings” because, unlike solvent-based coatings, they do not release volatile organic compounds (VOCs) into the atmosphere when applied. PUD applications in automobiles currently include use in exterior paint, dashboards and seating.

UBE’s PUD has the advantage of being made with polycarbonatediol (PCD), the world’s leading urethane ingredient. The use of PCD dramatically improves durability, including resistance to weather, heat and hydrolysis. Furthermore, water-based PUD coatings made with PCD form films quickly,



contributing to productivity, and deliver beautiful exterior finishes. Because such PUD produces a luxurious feel, it is used in the seating upholstery of certain high-end cars.

\* ETERNACOLL UW series PUD received the 4th GSC Encouragement Award (July 2015)

Polypropylene Hollow Structure Sheets **TWIN CONE** and **DANPLATE**

(Ube Exsymo Co., Ltd.)

Automobile Interior Materials to **Meet Eco-Friendly Needs**

TWIN CONE and DANPLATE are polypropylene hollow structure sheets valued for their lightness, thermal insulating properties, and shock and sound absorbency, qualities that respectively help reduce vehicle weight and thus improve fuel efficiency, improve battery durability, and reduce interior noise.

TWIN CONE is made by bringing together two sheets covered in conical projections face-to-face, combining them to form a four-layer hollow honeycomb structure. This material enables weight reductions in automobiles, logistics and building materials. In automobiles, it is used in such components as luggage boards and bumper reinforcement bars.

DANPLATE offers a cardboard-like hollow

structure with smooth outer surfaces and is easy to shape and cut. It is used in such applications as battery covers and the interior panels of truck cargo holds.



(Above) DANPLATE

(Below) TWIN CONE (attached to nonwoven fabric for use in automobile interiors)

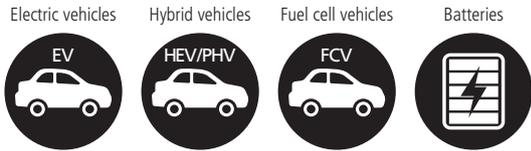


● **Upisel H Copper-Clad Laminate**

(Ube Exsymo Co., Ltd.)

**An Ideal Laminated Base Material for the Electrical Components of Next-Generation Cars**

Upisel H is a heat spreader material. Leveraging the voltage insulating qualities of UPILEX VT, its insulating layer is especially thin, improving heat radiation and allowing 3D forming. Furthermore, the use of polyimide in the insulating layer allows the creation of thinner and lighter substrates that can be formed into 3D structures, helping save space. The UBE Group is offering Upisel H as an ideal material for the electronic components of next-generation automobiles, such as LED lamp modules and power modules, which require high reliability.



# Driving Energy

## Functional Electrolyte Solution PURELYTE

### World-Leading Technology

Electrolyte solutions are one of the main materials used in lithium-ion batteries (LIBs), the power source for electric vehicles. Composed of electrolytes, which separate into positive and negative ions, dissolved in an organic solvent, these solutions are necessary to transport lithium ions between the positive and negative electrodes of a battery. UBE's high-purity electrolyte solutions are made by mixing electrolytes into such solvents as high-purity dimethyl carbonate (DMC) produced using UBE's proprietary organic synthesis technologies. These products' greatest feature is their designation as "functional electrolytes" due to additives developed in response to customer needs for specific functions. First commercialized in 1997, our functional electrolytes have contributed greatly to improving the performance of lithium-ion batteries in recent years.

#### DMC, an Ideal Electrolyte Solvent for Lithium Ion Batteries

UBE's high-purity DMC, used in the electrolyte solutions of LIBs, is the de-facto standard used by electrolyte solution manufacturers around the world on account of its quality, which is ideal for

LIB electrolyte solutions. UBE uses its proprietary nitrite technology\*4 to produce DMC from carbon monoxide (CO) and methanol in a clean process. DMC is also used as an ingredient for polycarbonatediol (PCD).

\*4. A safe, cheap and clean proprietary Ube Industries synthesis technology that uses carbon monoxide and methanol as ingredients

#### MgO, an Additive for Lithium-Ion Batteries (Ube Material Industries, Ltd.)

Magnesium oxide (MgO), produced by calcining magnesium hydroxide extracted from seawater, is used as an LIB additive.

#### ● AMC, a Lithium-Ion Battery Electrode Material

AMC (comprising multi-walled carbon nanotubes) features superior conductivity, dispersibility, and powder properties, and is used to enhance electrode conductivity. As an additive, AMC improves battery performance by ensuring extremely high conductivity even though a much smaller quantity is required compared with previous similar products.



PURELYTE  
Functional electrolyte solution



EV/HEV power supply: UBE Nylon 6, PURELYTE, DMC, UPORE/CPORE, SIMTEX, AMC

Drive-train power module substrates  
High-purity silicon nitride

## Ube Separators:

**UPORE** (Ube Industries, Ltd.) **CPORE** (UBE MAXELL CO., LTD.) **SIMTEX** (Ube Exsymo Co., Ltd.)

### Solving Battery Functionality and Safety Issues with a Single Film

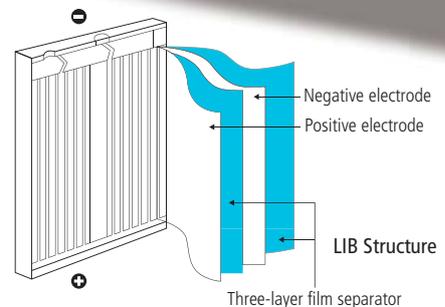
Separators are insulating materials used to separate the positive and negative electrodes of LIBs and ensure ion conductivity. They prevent shorting caused by contact between positive and negative electrodes as well as abnormal heat generation.

UPORE is used as a separator in the LIBs that power electric vehicles. It is a film material with innumerable micropores on the order of 0.1 μm that allow lithium ions to pass between electrodes. Until around 1990, most LIB separators consisted of a single layer of polypropylene. UBE then developed a three-layer film separator, with a layer of polyethylene between two layers of polypropylene. This three-layer structure helps ensure safety by shutting down the battery if it should heat to an abnormal temperature of around 130°C, the melting point of polyethylene. When polyethylene

begins to melt around this temperature, it blocks the transit of ions between electrodes. The outside polypropylene layers, meanwhile, have a melting point of 165°C, and therefore maintain their shape. Thanks to this excellent heat resistance and an eco-friendly manufacturing process that does not use organic solvents, UPORE enjoys a top-class position globally.

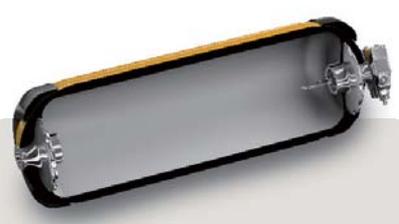
SIMTEX is a material used in the secondary batteries that power hybrid electric vehicles (HEVs).

In addition, UBE MAXELL CO., LTD., established in 2011, manufactures innovative film separators (CPORE) for use in automobiles. Inorganic particles are applied to these separators to further increase heat resistance, minimize shrinkage due to abnormal heating and prevent shorting inside the battery, significantly improving LIB safety.





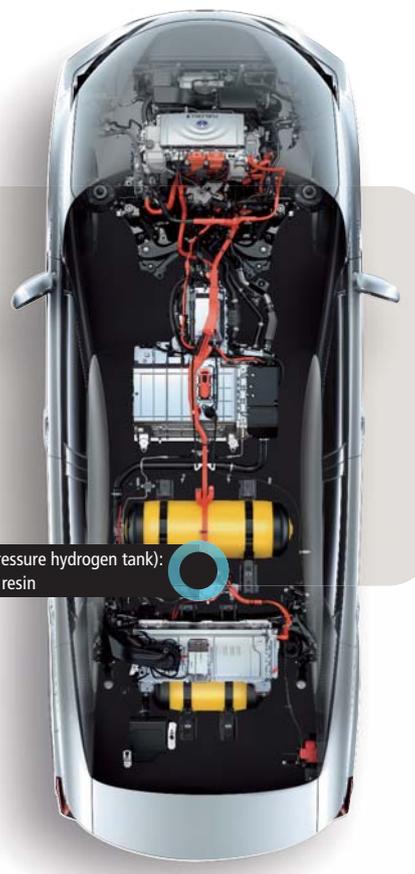
Focus



**Nylon Resin Used in the High-Pressure Hydrogen Tank of Toyota's Mirai fuel cell vehicle**  
Toyota Motor Corporation and Ube Industries, Ltd. have jointly developed UBENYLON 1218IU, a nylon material for use as a fuel cell vehicle (FCV) hydrogen tank liner. High-pressure hydrogen tanks made with this material are used in the *Mirai*, an FCV being developed by Toyota.

UBE NYLON 1218IU displays truly excellent mechanical properties, including hydrogen non-permeability as a polyamide (nylon) 6 resin as well as the ability to withstand rapid changes in tank temperature during hydrogen gas filling or emptying, and strong impact resistance even when used in extremely cold climates.

FCV power source (high-pressure hydrogen tank):  
UBE NYLON 1218IU nylon resin

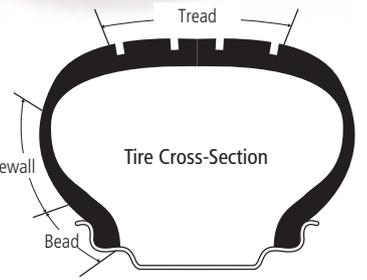


Tire Butadiene rubber



# Tires

Where the manufacturer, size and other information is displayed



## Polybutadiene Rubber

### Specialty BR Used to Help Create Fuel-Efficient Tires

One of the main uses of rubber, which comes in natural and synthetic varieties, is automobile tires. UBE specializes in the manufacture of synthetic polybutadiene rubber (BR) and boasts a world-class lineup of superior BR products. UBE's extensive lineup of BR products for tires includes grades that feature high abrasion resistance and help improve fuel efficiency as well as grades that offer excellent workability with a high loading of filler (to meet requirements of increased hardness and abrasion resistance) to meet a wide range of customer needs. Utilized in passenger car, truck and bus tire sidewalls and treads, these products are helping to

meet growing needs related to eco-friendliness and durability.

UBEVOL VCR (a BR-resin composite material) is produced using proprietary UBE technology to enable the even dispersal of resin in BR. It features excellent dimensional stability during processing, while finished products are highly rigid, helping to reduce weight by enabling thinner tires with less filler. As with BR, UBEVOL VCR is often used in the sidewalls of fuel-efficient tires, making it an eco-friendly product.

In addition, UBE's BR is used in anti-vibration rubber (for engine mounts) and sealants (for bonding and noise prevention).

## Building a Recycling Society

### ● Cement: Roads (Concrete Paving)

In Japan, asphalt is still the primary material used for paving, but concrete paving offers such merits as longer life cycles and somewhat reduced CO<sub>2</sub> emissions due to its contribution to the increased fuel efficiency of heavy vehicles. The main ingredient necessary, cement, is produced by recycling various types of industrial waste as raw material and fuel. The use of concrete paving, which offers superior durability and drivability, is on the rise.

### ● Gas Separation Membranes

Gas separation membranes are hollow-fiber membranes made from polyamides that have different degrees of permeability to different types of gases. Because polyamides offer excellent heat resistance and durability, UBE is proposing the use of these products in fuel cell humidification membranes for FCVs.



# Message from the President



Yuzuru Yamamoto  
Ube Industries, Ltd. President and Group CEO,  
Representative Director

The founding philosophies of the UBE Group are “living and prospering together” and “creating industries with infinite possibilities from the finite resources of coal.” These philosophies, espoused by founder Sukesaku Watanabe, have been passed down over the Group’s 118 year history to today.

All of us at UBE take pride in these traditions. In line with our founding philosophies and the Group vision, we are embracing new challenges to make the Group’s presence even stronger.

We have established the following three core UBE Group values to be shared throughout the group.

- Provide customers with added value as a manufacturer and contribute to global society
- Create new and enhance existing value by actively seeking new challenges
- Comprehend essential issues deeply and act swiftly, thoroughly and in a timely manner

Acting in accordance with these values, we strive to enhance UBE’s corporate value through our global business operations and to better meet stakeholder expectations.

## My Role as the New President

Under the UBE Group's founding philosophy "creating industries with infinite possibilities from the finite resources of coal," our forerunners built today's UBE Group by continually seeking out new challenges in new areas and never growing complacent. At the root of their achievements was a richly creative and ambitious corporate culture. These factors constitute the UBE Group's core traditions and are the basis of our activities today.

The choice of "Change & Challenge" as part of the name for the current medium-term management plan reflects those traditions, which have played a key role throughout the UBE Group's history by supporting its growth and development.

Leveraging these traditions in management, I hope to see UBE grow and flourish by swiftly responding to needs that arise in the business environment. We must not only manufacture products, but incorporate services and other less tangible elements to maximize the added value provided to customers. In addition, I hope to increase UBE's visibility as a company that is growing in a sustainable way. If other stakeholders, not just employees, can see UBE in this way, it will strengthen the Group's presence.

For this reason, it is vital that all of us working at the UBE Group share common values. Through solid leadership on the part of each individual within his or her role in the Group and as well as strong communication with colleagues and associates, we hope to ensure that our core values are shared and put into practice to achieve sustainable growth.

I, too, will do my utmost to advance the Company's development in line with the values of creativity and initiative expressed by "Change & Challenge." I look forward to your continued confidence and support.

## The UBE Group's CSR

CSR refers to a company's duty to operate in a way that fulfills its role as a member of society. To be in a position to do so, it is key for the UBE Group to achieve sustainable growth and development. A company that does not grow sustainably cannot serve its stakeholders. In other words, the foundation of CSR is the balanced return of the fruits of growth and development to stakeholders.

Companies serve a wide range of stakeholders and must strive to meet their expectations while maintaining balance in light of current business conditions. I believe that sustaining growth is essential to meeting these expectations, as is being the type of company that shareholders can picture continuing to grow in the future.

At the same time, a company is a member of the local community in which it is situated, and social contribution activities that benefit community development are an important part of CSR activities. It is important to think seriously about what kinds of activities make sense for us and will be useful to local communities, and then to systematically implement those activities. The UBE Group has manufacturing bases in Ube, Sakai, Chiba, Spain and Thailand and sales and service locations in North, Central and South America and Asia. In these and all the other locations where the UBE Group operates, this policy does not waver.

Growing in vitality along with local communities through the consistent application of this approach is what "living and prospering together" is all about.

## Progress under the Fiscal 2013-2015 Medium-Term Management Plan

The medium-term management plan lays out the following three basic strategies.

1. Strengthen the revenue base to enable sustainable growth
2. Maximize the global strength of the UBE Group
3. Address and be part of the solution for resource, energy and global environmental issues

**Strategy 1:** In the Chemicals Segment, in part because conditions in the business environment worsened more than anticipated, we were, unfortunately, not able to implement measures as planned. However, the Cement & Construction Materials Segment has performed favorably, supported by growing demand in Japan, and we have made steady progress in strengthening our global business foundations in the machinery business. We will therefore carry over part of the task of rebuilding the chemicals business into the period of the medium-term management plan initiated in fiscal 2016. We regard it as one of our most important tasks and are working toward a speedy recovery.

**Strategy 2:** Since the period of the previous medium-term management plan (fiscal 2010 to 2012), we have been working to locate our business activities near our customers' manufacturing and sales bases, expanding our network with sites in Brazil, South Korea, Taiwan, India and Mexico. We are seeing real signs of steady progress in increasing our presence in each region. Having laid out a concrete roadmap for global growth in each business, we are now seeking to further enhance business activities and strengthen our global framework and network to make maximum use of our overseas bases.

**Strategy 3:** Global environmental issues are continually evolving. As part of its CSR, UBE actively engages in activities aimed at realizing a sustainable society that include working to cut greenhouse gas emissions, reduce electricity and other energy consumption, and preserve biodiversity. The UBE Group also boasts a great number of environment-friendly technologies and products, such as lithium-ion battery materials, gas separation membranes and coating materials. We strive to create new technologies and products that meet customer needs and further expand UBE businesses that contribute to the environment.

## Promoting Diversity

Diverse human resources are an important wellspring of innovation. As work styles diversify, creating and expanding workplaces that offer meaningful opportunities to all individuals, regardless of gender, nationality, race, age or background, is an important part of CSR.

The management model that supported Japanese companies through the country's period of rapid economic growth, which assumed the life-long employment of mainly Japanese men working long hours, is no longer viable in the face of the country's declining and aging population. Going forward, we are seeking to discard this typical approach and its assumptions to better meet global expectations as a Group.

August 2015



Yuzuru Yamamoto  
Ube Industries, Ltd. President and Group CEO,  
Representative Director

# Corporate Profile

## ● Corporate Information

**Company Name:** Ube Industries, Ltd.

**Head Office:** Tokyo Head Office

Seavans North Bldg., 1-2-1, Shibaura,  
Minato-ku, Tokyo 105-8449, Japan

**Ube Head Office**

1978-96, Kogushi, Ube,  
Yamaguchi 755-8633, Japan

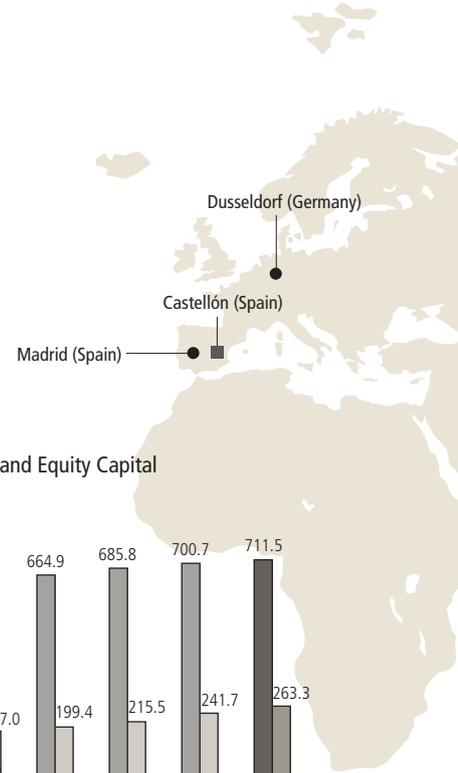
**Founded:** June 1, 1897

**Consolidated:** March 10, 1942

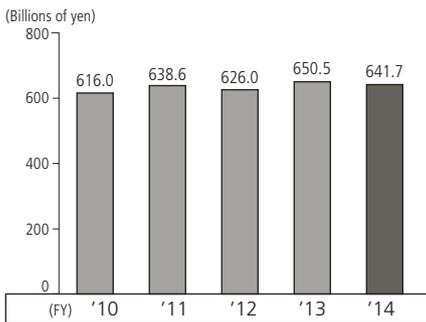
**President and Group CEO:** Yuzuru Yamamoto

**Capital:** ¥58.4 billion (as of March 31, 2015)

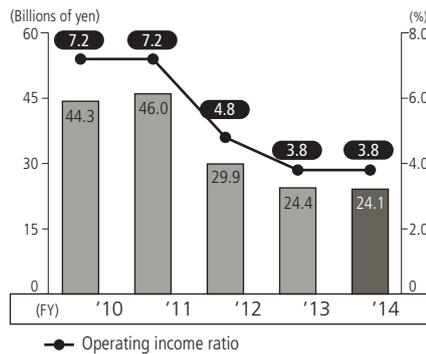
**No. of Employees:** 10,702 consolidated;  
3,726 unconsolidated  
(as of March 31, 2015)



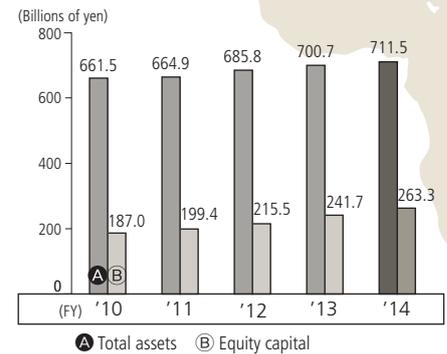
## Net Sales



## Operating Income and Operating Margin



## Total Assets and Equity Capital



## ● Business Profile

The history of the UBE Group stretches back more than a century. Since beginning coal mining operations in Ube, Yamaguchi Prefecture, we have adapted to social and industrial change, continually innovating and evolving. Through all this, certain values at UBE—technology and innovation—have never changed.

Today, UBE is active around the world. We pursue business based on product manufacturing backed by innovative technologies and an entrepreneurial spirit that anticipates evolving needs and embraces change. These values are etched deeply into the entire Group and continue to be passed down.

The UBE Group's current businesses are centered on chemistry and range from cement and construction materials to machinery and metal products, pharmaceuticals, and energy and the environment. UBE's products and technologies in these fields are used in a wide variety of applications, from those close at hand, including home appliances, household goods, automotive components and pharmaceuticals, to such areas as infrastructure and state-of-the-art aerospace applications.

## Segments



### Chemicals

UBE manufactures nylon resins widely used in packaging materials and automotive components as well as caprolactam, a material used to make nylon resins. Operating globally, UBE produces both types of products in three regions.

UBE's polybutadiene rubber is used by some of the world's top tire manufacturers and enjoys a strong reputation. Ammonia and various other industrial chemicals as well as ABS resin and polyethylene for general-use plastics support industry and modern lifestyles in a wide variety of applications.

UBE's specialty chemicals and products lineup includes lithium-ion battery electrolytes and separators, circuit substrates for flat-screen displays, heat-resistant polyimide resin for use in aerospace, and

other advanced materials as well as a large number of environment-friendly fine chemical products, such as waterborne paint and coating materials and raw materials, resin materials and fragrance materials. The Company also produces silicon nitride for use in bearings for wind power and machine tool applications.

The UBE Group's technical strengths are demonstrated by the high-value-added materials and products its unique technologies make possible.

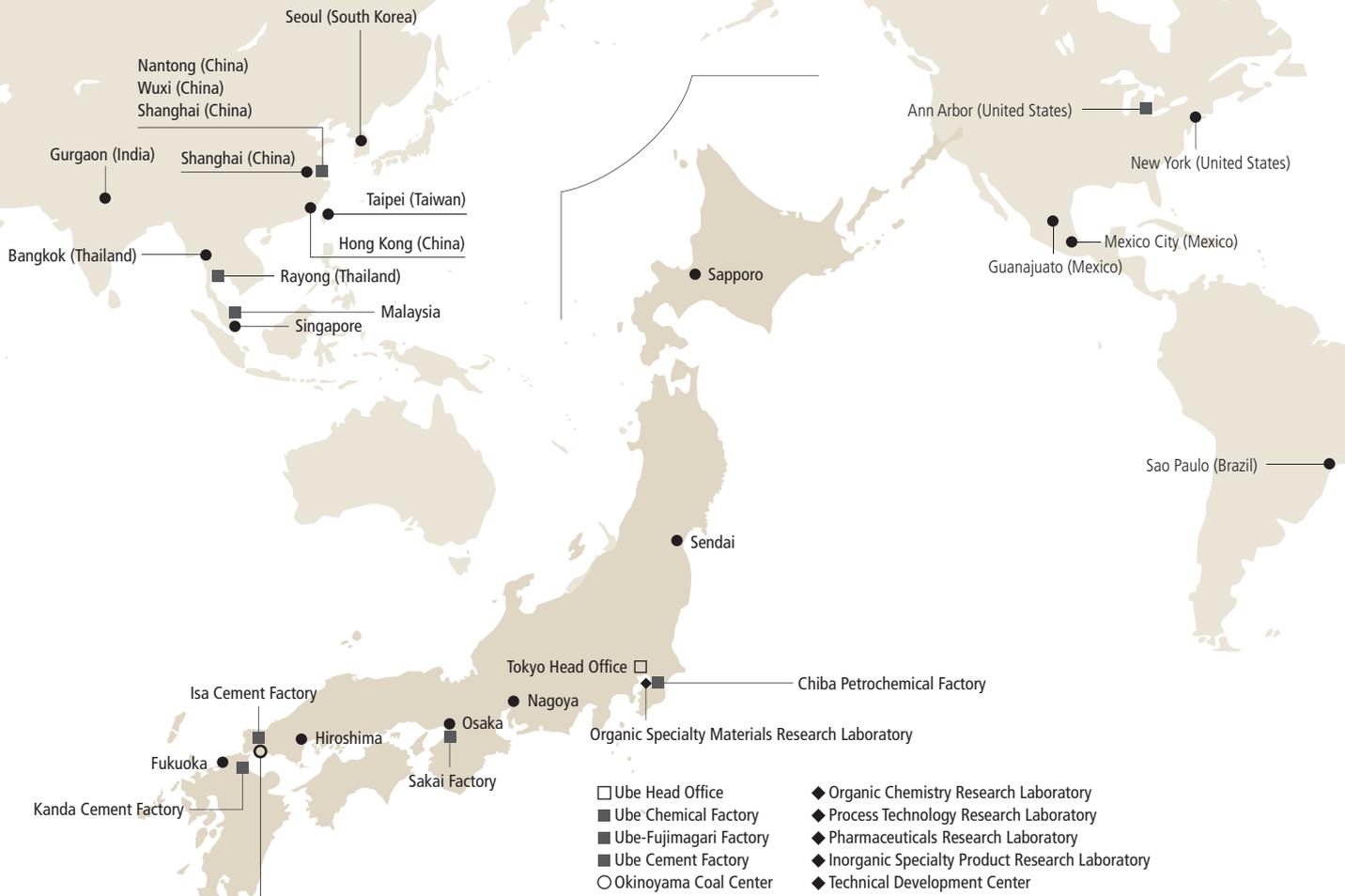
### Pharmaceutical

UBE began pharmaceutical R&D in the 1980s, building on its abundant organic synthesis technologies nurtured in other businesses. Today, UBE partakes in drug discovery, developing active pharmaceutical ingredients in-house and in collaboration with other pharmaceutical manufacturers, as well as the contract manufacturing of active ingredients and intermediates, in which the Company undertakes production process development and manufacturing on behalf of pharmaceutical companies. These two areas are the pillars of UBE's pharmaceutical business.

The UBE-produced anti-allergy agent *Talion*, (marketed by Mitsubishi Tanabe Pharma Corporation), antihypertensive agent *Calblock* (marketed by Daiichi Sankyo Company, Limited) and antiplatelet agent *Effient* (marketed by Daiichi Sankyo Company, Limited and Eli Lilly and Company) are already on the market, helping to improve users' health.

- Head office
- Coal center
- ◆ Research laboratory
- Sales base (location)
- Factory

### Business Bases in Japan and Overseas



- Ube Head Office
- Ube Chemical Factory
- Ube-Fujimagari Factory
- Ube Cement Factory
- Okinoyama Coal Center
- ◆ Organic Chemistry Research Laboratory
- ◆ Process Technology Research Laboratory
- ◆ Pharmaceuticals Research Laboratory
- ◆ Inorganic Specialty Product Research Laboratory
- ◆ Technical Development Center



#### Cement & Construction Materials

The UBE Group meets a wide range of needs in the areas of civil engineering and construction with its extensive product lineup and by constantly introducing new products with excellent functions, further expanding its reputation for reliability.

Ube-Mitsubishi Cement Corporation provides a stable supply of UBE brand cement throughout Japan. From ordinary cement to specialty cement and solidification agents, the broad spectrum of trusted UBE brand cement products supports the formation of infrastructure.

UBE's cement factories accept various waste materials, including waste plastic and sewage sludge, for reuse as fuel. UBE also boasts an extensive lineup of construction materials. In recent years, the Group's seismic retrofitting technologies have been widely adopted in schools and other buildings.



#### Machinery & Metal Products

UBE brand molding machines and industrial machinery, including die-casting machines, injection molding machines and extrusion presses, enjoy an excellent reputation in the global market. UBE supplies die-casting machines primarily to the automotive industry in and outside Japan, and boasts a particularly outstanding global track record in large machines. The Company also has an industry-leading lineup of injection molding machines with mold clamping force ranging from 650 tons to 3,000 tons, among the strongest in the world.

By strengthening and enhancing the linkage of products and services, UBE is reinforcing its ability to meet the needs of customers in the global market while expanding its network of locations to emerging nations that promise growth, such as India and Mexico.



#### Energy & Environment

In addition to the UBE Group's overall energy infrastructure, which includes coal-related businesses that provide a stable supply of imported coal and the supply of electricity from in-house power stations, the Group operates new energy businesses, such as the independent power producer (IPP) business and solar power (megawatt) business.

UBE's annual coal handling capacity is approximately seven million tons. The Okinoyama Coal Center in Ube City is one of Japan's largest. UBE stores coal at the center. From there, it distributes coal to users throughout the country.

Furthermore, the UBE Group is actively engaged in the development of new biomass fuels, which are promising for their potential to reduce greenhouse gas emissions.

This is UBE's founding philosophy and core CSR concept and has been passed down for over 118 years

# The Spirit of "Living and Prospering

## ■ Promoting the Management Philosophy, "Living and Prospering Together" to Create Ideal Local Communities

Sukesaku Watanabe, the founder of UBE Kosan, was a businessman who loved his hometown. Strongly believing in the importance of maintaining close links with local communities while pursuing business development, Watanabe undertook various initiatives to upgrade the civil and social infrastructure of the region. Such initiatives included establishing an electric company that provided the region's first electric lighting, constructing water supply facilities and railroads, and setting up schools to foster the development of human resources. Sukesaku Watanabe's favorite phrase, "living and prospering together with the local community," forms the basis of the UBE Group's CSR activities.

## ■ Promoting the Management Philosophy "Creating Industries with Infinite Possibilities from the Finite Resources of Coal" to Foster a Frontier Spirit

Anticipating a future in which there would be no coal left to mine, Watanabe espoused the philosophy of "creating industries with infinite possibilities from the finite resources of coal" in order to ensure the continuing prosperity of local communities. Consequently, he focused his efforts on making the transition from the coal mining industry to new, developing industries. In particular, Sukesaku Watanabe had the foresight to use soil removed from mines to create waterfront landfills that could serve as industrial sites. In addition, he established harbor jetties and railroads while opening steel, cement and chemical factories. Such facilities form the foundation of the present UBE Group. In line with Watanabe's philosophy of taking on new business challenges, UBE cultivates a corporate culture that encourages a spirit of challenge that fosters a frontier spirit in every employee.

UBE's origins are in the business of coal mining. In 1923, using slag from coal mining operations and limestone, the Company launched its cement business. Then, in 1934, UBE established technology to gasify low-grade coal from the Ube mines and successfully began manufacturing ammonium sulfate through ammonia synthesis, thereby establishing the foundation of its organic and inorganic chemical synthesis technologies. Today, 118 years after the Group's founding, these traditions have blossomed into a wide array of products and technologies, including the pharmaceuticals and automotive components covered in this report's Special Feature.

### Business Activities and Social Contribution Activities

1897	Okinoyama Coal Mine is founded as a silent partnership
1910	Okinoyama Home School is established (later transferred to Ube City)
1913	Saibi Girl's School is established (later transferred to Ube Village)
1914	Ube Shinkawa Iron Works is established Ube Technical School is established (later merged with Ube Technical High School due to educational system reforms)
1923	Ube Cement Production, Ltd. is established
1924	Waterworks constructed upstream on the Kotogawa River (transferred to Ube City)
1928	Ube Electric Railway Co. is established (rail lines now form part of West Japan Railway Company's Onoda line)
1933	Ube Nitrogen Industry, Ltd. is established
1936	Watanabe Memorial Culture Association is established as a private foundation (now a foundation incorporated in the public interest)
1937	Watanabe Memorial Hall is completed
1942	Ube Industries, Ltd. is established
1949	The Ube System* is launched, Kotogawa Dam is completed (construction 50% funded by UBE)
1953	Ube-Kosan Sanatorium opens (now Ube Industries Central Hospital)
1955	The Isa Cement Factory and Ube Caprolactam Factory are established
1959	Tawarada Ou Memorial Gymnasium is completed (donated to Ube City) The Watanabe Memorial Science Foundation is established (now the UBE Foundation)
1960	The Ube Country Club is launched (now the Ube 72 Country Club)
1964	A polyethylene plant in Chiba and the Kanda Cement Factory are established
1967	The Sakai Factory is established
1971	A polybutadiene factory is completed in Chiba
1980	The Okinoyama Coal Center is completed Joint pharmaceutical research begins, first general-purpose factory is completed (manufacturing intermediates)
1982	A 145 MW coal-fired power plant is completed
1983	The ANA Hotel UBE opens (now the ANA Crowne Plaza Hotel Ube)
1991	Special-purpose subsidiary Libertas Ube, Ltd. is established
1993	UBE acquires a stake in Spain-based PQM (now UBE Chemical Europe, S.A.)
1997	UBE celebrates its 100th anniversary. Manufacturing bases are established in Thailand. Ube City receives the Global 500 Award from the United Nations Environment Programme (UNEP) for the Ube System
1999	Ube Machinery Corporation, Ltd. is established
2004	216 MW coal-fired power facility completed
2006	A polybutadiene rubber manufacturing subsidiary is established in China
2007	UBE celebrates its 110th anniversary. UBE-i-Plaza comprehensive visitor center opens
2008	First UBE Group Charity Concert held
2011	Fourth pharmaceutical factory is completed
2013	A polybutadiene rubber manufacturing company is established in Malaysia Ube-Fujimagari Factory is established (with UBE undertaking contracted factory operations on behalf of Ube Ammonia Industry, Ltd.)
2014	Ube Industries Central Hospital is registered as a medical services corporation

\*A unique initiative undertaken by Ube City to address environmental problems by building consensus based on mutual trust and cooperation between industry, government, academia and citizens. Introduced in the 1950s, when it was applied to solving the problem of dust pollution, the Ube System's spirit and practices have been used to help deal with increasingly complex environmental issues ever since. In 1997, Ube System initiatives received international recognition in the form of the Global 500 Award from the United Nations Environmental Programme (UNEP).

# *Together with Local Communities”*

## Group Vision:

### Wings of Technology and Spirit of Innovation

This is the heritage driving our global success. The Ube Group will embrace a frontier spirit in seeking to achieve coexistence with the global community driven by the limitless possibilities of technology, while continuing to create value for the next generation.

The UBE corporate philosophy, “living and prospering together with local communities,” and a spirit of unremitting self-reform comprise the UBE Group vision. This Group vision is being passed along to every employee. The UBE Group’s strengths lie in business activities centered on product manufacturing through the use of original technology as well as a proactive approach that meets the needs of the age. Expanding these strengths worldwide, we will work to realize sustainable development around the globe with the aim of achieving global coexistence.

The UBE Group works to achieve sustainable business and social development by positioning its **Basic CSR Policies** at the center of its business activities. In so doing, we are fulfilling our responsibility to maintain coexistence between business and society. In addition, we adhere to the **UBE Action Guidelines** in order to realize proactive CSR activities and, in turn, attain the trust of all stakeholders.

#### UBE Group Basic CSR Policies

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- Continually improve profits and earnings and maintain a sound financial position in order to increase corporate value
- Provide products, services and systems that contribute to safety and the environment, reduce the use of harmful materials and waste, and institute policies for the prevention of global warming in order to contribute to the conservation of the global environment
- Establish compliance procedures to improve corporate governance and create a better working environment as a part of our activities to contribute to society

Established July 2005

#### Nine Chapters of the UBE Action Guidelines

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##### **Chapter 1 Corporate Mission and Social Responsibility**

We will strive to create new value and achieve sustainable growth as a corporation while actively fulfilling our corporate social responsibilities to contribute to the sound growth of society.

##### **Chapter 2 UBE Group and the Law**

We will comply with applicable legislation and our company regulations, conducting ourselves as a member of a sound society. We will refrain from any ties or transactions with antisocial forces, and will not bow to the unreasonable demands of antisocial forces.

##### **Chapter 3 Business Activities and Creating Value**

We will develop and supply technologies, products and services that are safe and serve useful purposes, in order to earn the confidence of the public.

##### **Chapter 4 Fairness and Integrity**

We will strive to promote fair and open competition while executing our work with integrity as we pursue our business activities both at home and abroad.

##### **Chapter 5 Safety and the Environment**

We are committed to safety, and will actively and voluntarily implement initiatives to conserve the global environment as an issue facing all humankind.

##### **Chapter 6 UBE Group and Human Rights**

We will respect human rights and create healthy and positive workplaces that are comfortable to work in, as we pursue our business activities both at home and abroad.

##### **Chapter 7 UBE Group and Information**

We will strive to protect information and engage in appropriate disclosure of corporate information, while actively and thoroughly facilitating communication with society.

##### **Chapter 8 UBE Group and the International Community**

We will contribute to the growth of the regions we are involved in, as a member of the international community.

##### **Chapter 9 Summary: Building a Firm Foundation of Corporate Ethics**

We will build a firm foundation of corporate ethics, based on the UBE Action Guidelines and through close cooperation within the UBE Group and with our business partners.

Revised March 2015

# 01 CSR Management

## CSR Promotion Initiatives

CSR is an approach to corporate management that defines such management as a company's actions to fulfill its role as a member of society.

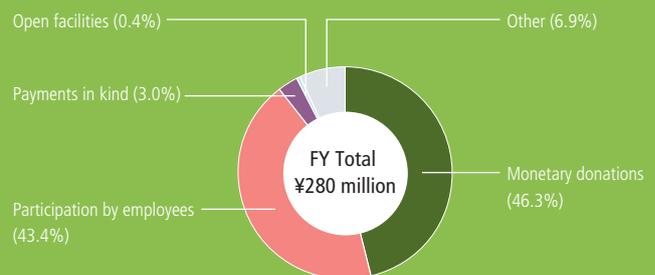
The UBE Group's CSR activities encompass increasing the Group's corporate value and purpose; ensuring sustainable growth; deepening the confidence of stakeholders and broadly working to coexist harmoniously with society through day-to-day dialogue with its stakeholders; and globally expanding the scope of "growing and prospering together," the Company's founding philosophy, through business activities going forward.

## ● The Group CSR Committee

CSR activities are promoted by the Group CSR Committee, which is composed of members of the Group Strategic Management Committee and chaired by the Group's CEO. In line with the Group's Basic CSR Policies, the Group CSR Committee makes decisions on and revises important matters related to CSR activities and assesses the results of the Group's CSR-related

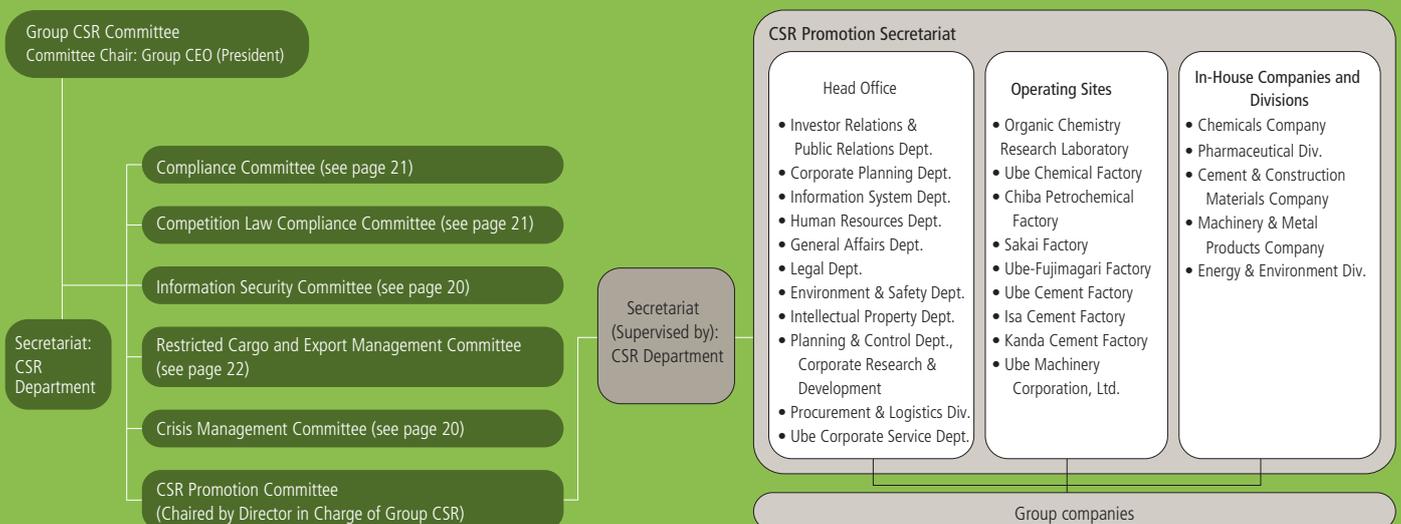
activities. Under the Group CSR Committee are six specialized committees, namely the Compliance Committee, the Competition Law Compliance Committee, the Information Security Committee, the Restricted Cargo and Export Management Committee, the Crisis Management Committee and the CSR Promotion Committee. Each of these undertakes deliberations, reporting and revisions related to concrete action plans.

Breakdown of Spending on Social Contribution Activities in Fiscal 2014 (By Type)

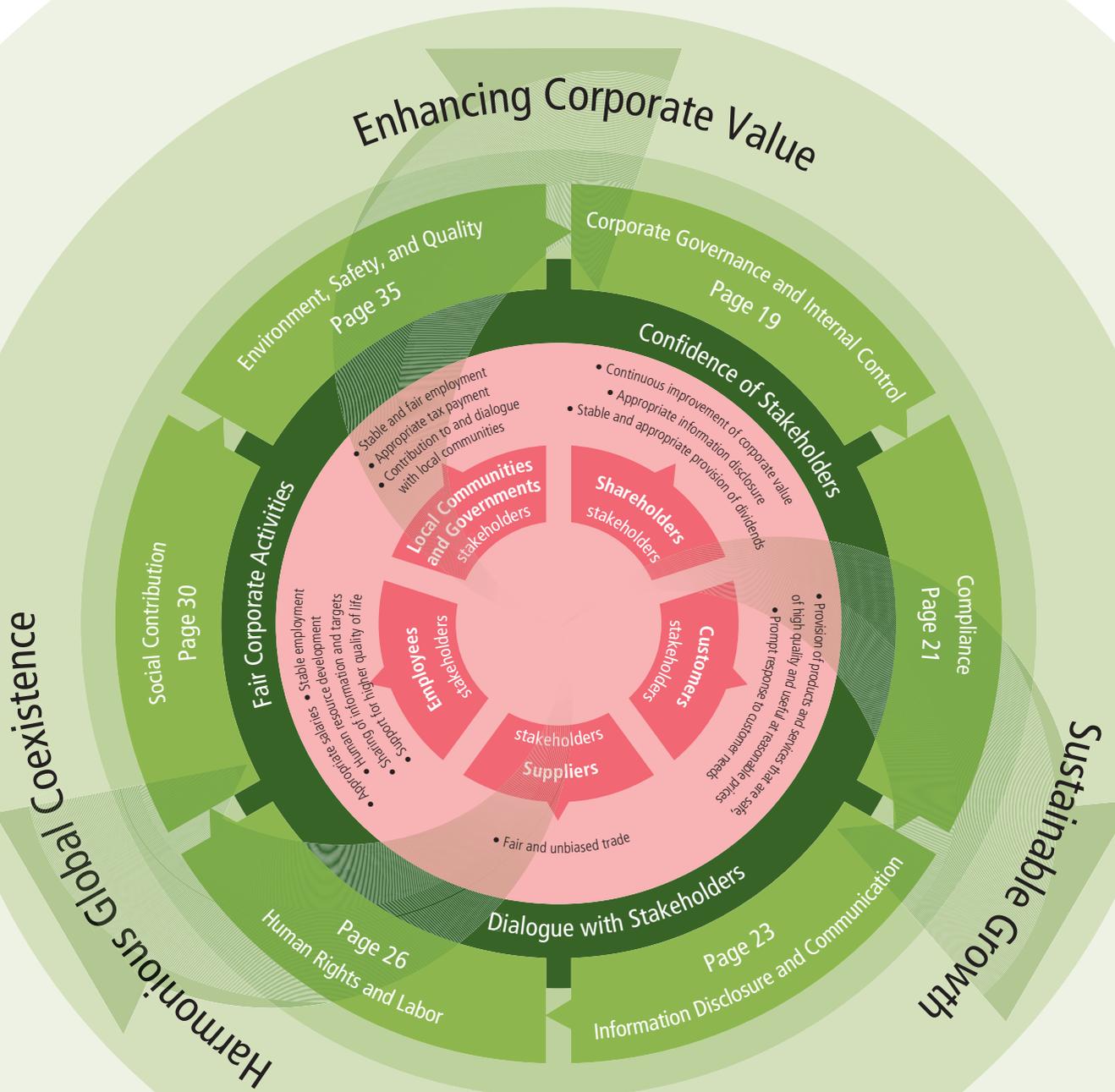


## Group CSR Committee

## CSR Promotion Committee



# Expanding the Scope of Living and Prospering Together That is the UBE Group's CSR.



The concentric circles and outward pointing arrows of this diagram convey the concept of globally expanding the scope of living and prospering together, UBE's founding philosophy, through daily business.

In the center circle are the five stakeholder categories and UBE's mission with regard to each.

To address the six CSR issues of concern to stakeholders, the UBE Group always conducts fair business activities and works to deepen stakeholder confidence through regular dialogue.

UBE believes that the organic operation of these separate CSR activities will contribute to enhancing corporate value, sustainable growth and harmonious global coexistence.

# 01-1 Corporate Governance

Basic Policies : • To establish highly transparent corporate governance and an efficient and disciplined system of execution  
 • To maintain and improve ability to continue business using BCM\*1

## ● Initiatives to Establish and Maintain Corporate Governance

The UBE Group's basic mission is to promote sustainable growth and increase corporate value over the medium to long term for the entire Group.

To that end, we believe that we must establish and maintain effective corporate governance in order to sustainably conduct proper business activities and thereby fulfill our duties toward and earn the trust of all the Group's stakeholders, including shareholders, suppliers, employees and local communities.

### Board of Directors

To bring a third-party perspective to decision making, thereby ensuring efficiency, transparency and objectivity in management, four of the eight corporate directors that make up the Board of Directors are appointed from outside the Company. Furthermore, the Board of Directors is chaired by a director who, in principle, is not an executive officer. In addition, UBE has positioned a Nominating Committee and an Evaluation and Compensation Committee as subsidiary entities of the Board of Directors. Both committees comprise five directors and are chaired by outside directors.

### Audit System

UBE has a Board of Corporate Auditors. Together with the Board of Directors, this board works to enhance the supervision of management and ensure management fairness and transparency.

The Board of Corporate Auditors consists of four corporate auditors, of whom two are appointed from outside the Company. The task of corporate auditors is to ensure that directors and executive officers perform their duties appropriately by attending and offering their views at important

meetings, including meetings of the Board of Directors, by examining important approval documents and by receiving reports on operations from directors and other officers.

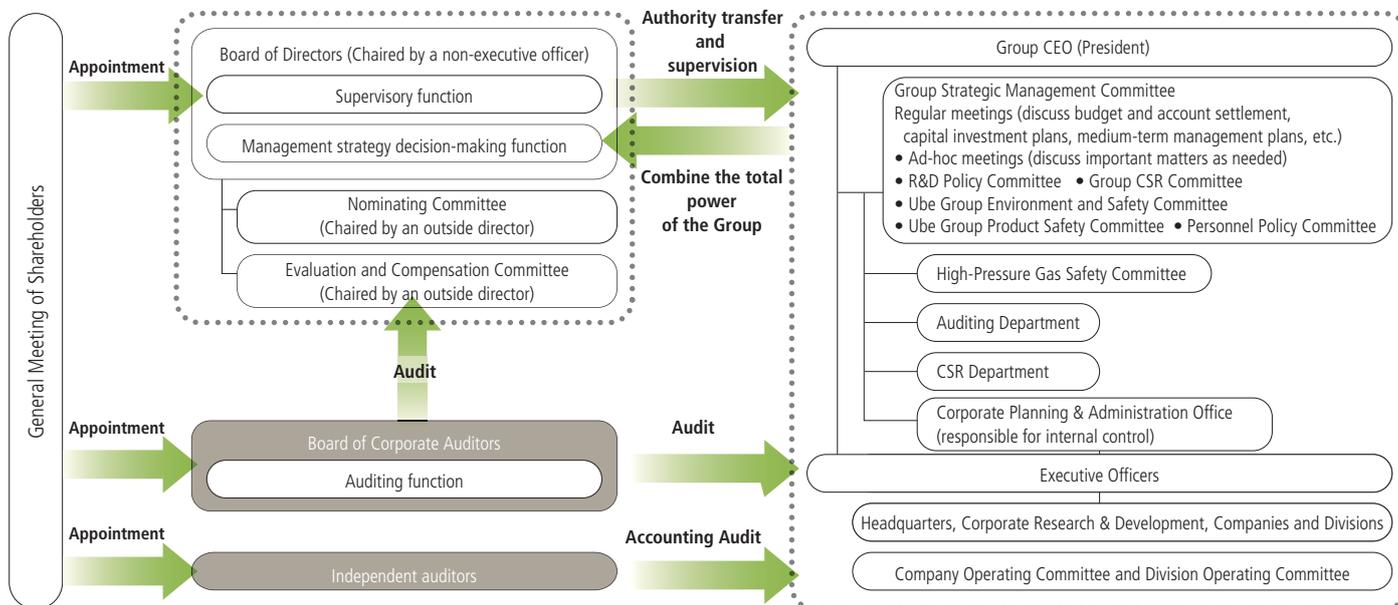
The corporate auditors also regularly meet with the independent auditors to hear about their auditing plans and the status of their implementation. In addition, corporate auditors work to maintain effective communication with the internal auditing departments and the corporate auditors of Group companies through regular exchanges of information.

At UBE, internal audits are conducted by the Auditing Department, which reports directly to the President as an independent organization. Audits cover the entire UBE Group, including UBE's overseas subsidiaries. By checking the status of internal control and compliance with laws and regulations as well as adherence to manuals, UBE endeavors to identify potential risk across all areas of its business activities. The Auditing Department and the corporate auditors regularly exchange information and work in close cooperation with each other; for example, when the auditors conduct audits, some of the Auditing Department staff may accompany and support them as required. As a member of Companywide risk management organizations, such as the Compliance Committee, the head of the Auditing Department collaborates with each committee and works to strengthen risk management systems.

### Executive Officer System

In June 2001, UBE adopted an executive officer system with the aim of separating governance and management functions. As of June 2015, the Group has 23 executive officers, of whom three are also directors. Executive

## Corporate Governance Structure



## Decision-Making System

### ● Board of Directors

On behalf of shareholders, the Board of Directors discusses and makes decisions on the issues provided for by the Companies Act, the basic policies of the Company and important executive issues from medium- to long-term perspectives.

### ● Group Strategic Management Committee

The Group Strategic Management Committee is responsible for discussing and making decisions on key matters concerning resource allocation, items that need to be adjusted from an overall Group perspective, and other key matters that affect the Group as a whole in accordance with the Group Management Guidelines and Group Strategic Management Committee rules.

### ● Company Operating Committee and Division Operating Committee

The Company Operating Committee and the Division Operating Committee are responsible for discussing and making decisions on key matters, such as business strategy, at their respective levels. They engage in these activities for Ube Industries and other UBE Group companies in accordance with the Group Management Guidelines and Company/Division Operating Committee rules that govern their operations.

officers carry out business operations in accordance with management policies determined by the Board of Directors, exercising the authority delegated to them by the President and Representative Director.

To realize flexible personnel matters with regard to officers and fully enforce a performance-related rewards system, corporate director and executive officer terms of service are set at one year.

### Risk Management Systems

The UBE Group is developing and reinforcing its risk management systems so that it can identify and assess the probability and impact of risks that might prevent the attainment of its business objectives and implement appropriate risk countermeasures.

In order to deal with specific types of risks, we have established the UBE Group Environment and Safety Committee and the UBE Group Product Safety Committee, which address issues related to environment and safety, and product safety, respectively. Specifically, for the entire Group, these two committees formulate and actively implement policies. In addition, the Group has established the following committees to deal with individual risk categories.

### Information Security Committee

Due to the digitization of a wide range of information, companies are facing risks of information leakage, falsification and loss, and these risks can have a serious influence on their corporate activities. As one measure to address risks in everyday operations, we conduct information and communications-based drills based on particular types of disaster three times per year.

In 2002, the UBE Group established the Basic Information Security Policy to ensure information security, and it is raising employees' awareness of the policy and monitoring their compliance. We have also established information security rules and regulations to ensure appropriate information management.

In addition, UBE provides yearly information security training via e-learning for all employees as well as opportunities to learn about the latest information security measures. In fiscal 2014, this training was provided for 11,569 employees at 98 companies, and achieved a 100% participation rate.

### Crisis Management Committee

In order to deal with environment- and safety-related accidents and disasters, including those at factories and occupational injuries, the UBE Group has established crisis management regulations, a crisis management manual and other measures to respond to emergencies that could occur either in Japan or overseas. Through such measures, the Group maintains a system that enables rapid and appropriate responses to a variety of incidents, thus minimizing the impact on its business operations.

Moreover, the Overseas Crisis Management Committee has been established within the Crisis Management Committee to take charge of crisis management for employees who are on business trips or working overseas.

### Business Continuity Framework: BCP\*2 and BCM

The UBE Group strives to minimize the impact of unexpected events on corporate activities and on stakeholders. Specifically, the Group has established a business continuity plan (BCP) and promotes business continuity management (BCM), putting in place preemptive safety measures, performing drills, and verifying, evaluating and reviewing such activities to enhance

the effectiveness of the BCP.

In terms of preparedness for a major earthquake directly under the Tokyo metropolitan area or the Nankai Trough, every year we conduct field drills at the head office and branches and review the BCP. We hold monthly disaster response BCP briefings to promote the sharing of the BCP and incorporate the opinions and suggestions of employees into revisions of the BCP. Furthermore, the Group formulates and implements measures to reduce the impact of natural disasters on factories and facilities, mainly through the Group Earthquake Countermeasures Committee (see page 39).

To prepare for outbreaks of infectious disease, we have created a Group manual for responding to future outbreaks of new influenza strains in line with Japan's 2013 Special Measures Act to Counter New Types of Influenza Governmental Action Plan and the accompanying guidelines. Based on the policies laid out in this manual, we conduct drills for response teams based on outbreak scenarios and regularly inspect and revise the BCP for specific offices and facilities as well as the Group as a whole.

Furthermore, given the potential for enormous impact of industrial disasters, such as a fire or explosion at a factory, we are developing a Companywide response structure for dealing with such disasters. In fiscal 2014, we conducted media training in tandem with disaster drills held at each factory.



BCP field drill for an earthquake directly below the Tokyo Metropolitan Area (held at Tokyo Head Office and Ube Head Office) (February 2015)



BCP field drill for a major earthquake in the Nankai Trough (Nagoya Branch) (February 2015)



BCP field drill for a major earthquake in the Nankai Trough (Osaka Branch) (March 2015)

### Glossary

\*1. BCM (business continuity management): Continuous management to improve responsiveness to crises and help BCPs take root within the organization through such activities as regular drilling in order to evaluate and improve the effectiveness of BCPs.

\*2. BCP (business continuity plan): A plan made to minimize the suspension of business in the event of a disaster and to recover its functions as early as possible to ensure business continuity.

# 01-2 Compliance

Basic Policies : • To comply with corporate ethics and social norms without fail  
 • To eliminate antisocial elements

• To comply with laws, regulations and contractual obligations

## ● Measures to Ensure Compliance

When such problems as unsanctioned cartel activity, information leaks or bribery occur in the course of a company's activities, they not only give rise to legal liabilities, such as fines or compensation payments, but damage the trust that the company has built with society. The impact of such problems can be far-reaching, affecting the company and its shareholders, employees and management, suppliers, local communities, and anyone else involved with the company.

To prevent such negative social impact, the UBE Group strives to ensure compliance. The Group understands compliance with laws and regulations, corporate ethics and social norms to be essential to its business activities. To prevent violations, we maintain prevention-oriented systems and conduct information provision and training.

## ● Clarifying and Increasing Awareness of Guidelines That Ensure Compliance

### Increasing Awareness of UBE Action Guidelines (see page 16)

The UBE Action Guidelines have been established as behavioral standards for all management and employees of the Group. The guidelines are distributed in booklet form to all employees and are revised as necessary in light of changes in the Group's business environment. In the guidelines we lay out a clear code of conduct for all Group members to follow to ensure appropriate action amid continually evolving social and business expectations. In fiscal 2014, we added two sections to the UBE Action Guidelines, both aimed at ensuring comfortable workplaces for all employees, including those raising children. Specifically, the new additions cover the importance of work-life balance and the creation of workplaces that are accommodating of diverse work styles.

## Measures to Eliminate Antisocial Elements

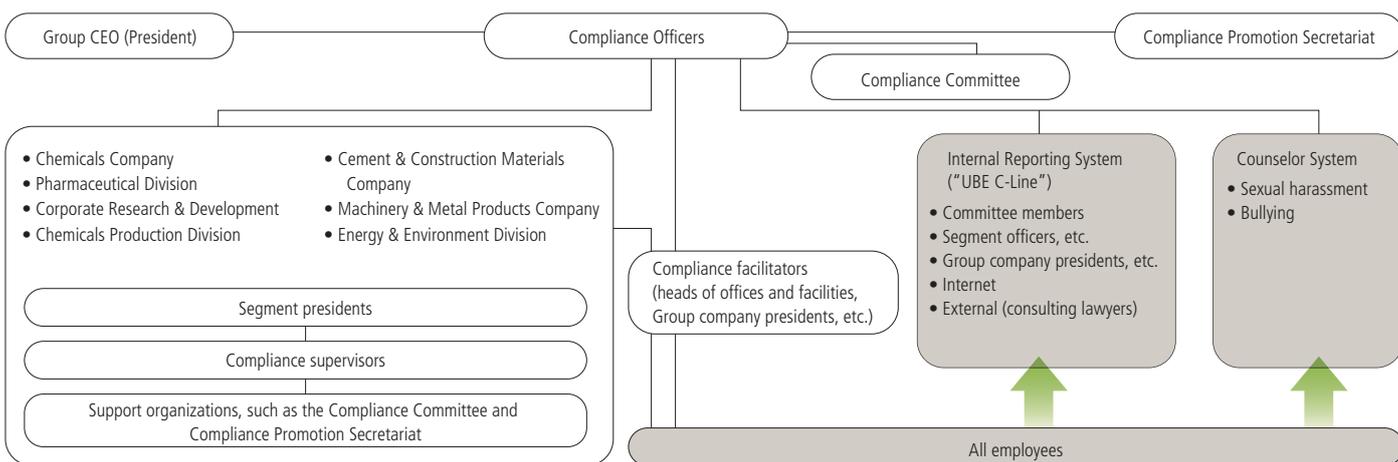
The UBE Group clearly states its Basic Policy with Regard to Anti-Social Elements (as resolved by the Board of Directors in April 2009) to the Group and the world. This policy states that, to ensure the safety and soundness of civil society, the UBE Group will neither maintain relations with nor bow to improper demands from antisocial elements.

Furthermore, antisocial elements may sometimes take on the guise of a legitimate company and use capital gained through dealings with ordinary companies under said guise for illegal purposes. As such, the Group takes measures to ensure that even in the event of unintentional dealings with antisocial elements it can end such relationships as soon as the antisocial elements are identified, for example, by including antisocial element cancellation clauses in the contracts drawn up at the commencement of transactions. In addition, the Group promotes coordination with local police and works to collect information that will facilitate its proper response to any improper demands received.

## Competition Law

With the continuing globalization of corporate activities, Japanese companies are increasingly running afoul of overseas competition and antimonopoly regulations aimed at countering international cartel-related and other activities. Some such cases have resulted in fines, penalties, or the incarceration of companies' executives. In 2014, the UBE Group established the Competition Law Compliance Committee, beginning new efforts to prevent cartel activity. The Group has also established new rules for the same purpose. Under these rules, before a sales employee can contact another company engaged in the same business as their own company or division, they must obtain prior approval from their managing division, which will deliberate on the objective and necessity of said contact. Report-

## Compliance System



## Overview of Systems Ensuring Compliance

<p>● <b>Compliance Officers (CO)</b>          Two executive officers have been appointed as Compliance Officers (one of whom was appointed as Chief Compliance Officer). Their task is to promote and ensure compliance throughout the UBE Group by supervising compliance-related activities.</p>	<p>● <b>Compliance Committee</b>          The Compliance Committee advises the Compliance Officers and deliberates on important compliance-related issues. To ensure transparency, a legal adviser (a consulting lawyer) is invited to serve as an outside committee member.</p>	<p>● <b>Compliance Promotion Secretariat</b>          This unit administers compliance-related activities under the direction and supervision of the COs.</p>
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ing on the outcome of such contact has also been made mandatory. In these ways, the Group strives to avoid any involvement in cartel activity.

### Measures Regarding Restricted Cargo

The UBE Group maintains that the basic purpose of export management is to prevent the illegal export or supply of goods and technologies that are subject to export controls under laws and regulations designed to maintain international peace and stability, such as Japan's Foreign Exchange and Foreign Trade Act. We strive to promote awareness of related issues throughout the Group. UBE conducts internal seminars for employees directly involved in related operations to ensure adequate knowledge of the many products and technologies subject to such regulations.

### Internal Reporting System (UBE C-Line)

We have established compliance hotlines (the UBE C-Line) inside and outside the Group that allow Group employees to immediately report compliance-related problems, aiming to quickly uncover and resolve such issues should they arise. Reports received through UBE C-Line are handled by the Compliance Promotion Secretariat, which works in cooperation with the parties involved to conduct rapid and careful fact gathering and work toward a solution.

#### Number of Internal Notifications in Fiscal 2014

Classification	Cases
(1) Human relationship issues in the workplace (bullying, sexual harassment, etc.)	5
(2) Business conduct issues in the workplace (improper actions)	1
(3) Combinations of (1) and (2)	1
(4) Other	2

## ● Training and Education Initiatives

### Providing Information on Compliance

Many compliance violations are thought to be the result of inadequate awareness of laws and other rules. On its intranet, the UBE Group has set up pages dedicated to competition laws, the Act against the Delay in Payment of Subcontract Proceeds, etc., to Subcontractors, and other laws and regulations. These pages are accessible to Group officers and employees, and offer explanations of laws and information about revisions as a means of promoting correct understanding through information provision.

### Online Training Via e-Learning

Twice a year, we hold e-learning training aimed at increasing compliance awareness among management and employees. Training in 2014 covered such topics as harassment and annual paid vacation, aiming to foster understanding of how all employees should act to create a more comfortable workplace. We strive to make the materials relevant and interesting, covering case study in which employees or management got involved in copyright infringement or cartel activity without realizing that they were violating the law and other examples of situations that could realistically happen to anyone.

### Compliance Workshops

In addition to self-directed study via e-learning, we hold workshops at Group offices and facilities. Since in April 2015, this has included training led by instructors selected from within each office or facility in an effort to provide training better rooted in the needs of each location.

## Awareness Raising and Training on Individual Laws

With the aim of ensuring compliance with the Act against the Delay in Payment of Subcontract Proceeds, etc., to Subcontractors, since 2006, we have held the Liaison Conference for the Act against the Delay in Payment of Subcontract Proceeds, etc., to Subcontractors. This conference brings together relevant personnel from procurement, manufacturing and legal divisions to exchange information in the Ube District. Since fiscal 2014, we have also held this conference in the Tokyo area. In addition, the UBE Group provides regular training and e-learning aimed at further deepening knowledge of various related laws, including the Antimonopoly Act, the Act against the Delay in Payment of Subcontract Proceeds, etc., to Subcontractors and the Unfair Competition Prevention Act.

### Staff Message



**Kazuhiko Okamoto**

Manager, Intellectual Property Dept.

### Addressing Risks Related to Growing Internet Use

Today, anyone can easily create and distribute digital content on the internet, and hundreds of millions of people do so. Unsurprisingly, the risk to individual content creators and users of becoming caught up in copyright infringement or other legal issues is on the rise.

At the Intellectual Property Department, to avoid such risks as copyright infringement, we provide education about proper practices related to copyrights and other intellectual property (IP). Participants need not study difficult laws; if they just understand 1) what is okay to do and 2) what is not okay to do, and take the necessary precautions, most risk can be avoided.

The great majority of problems can be avoided by clarifying whether or not content can be used by considering the proposed form of use and obtaining permission from the copyright holder beforehand.

Specifically, useful steps include clarifying 1) correct citation/attribution methods, 2) reprint permissions, 3) form of use (e.g. paper or digital), 4) if digital, venues in which information can be shared and whether or not it can be posted online, etc. (public dissemination issues), 5) whether it can be adapted or altered (to be confirmed ahead of time) and 6) when content concerns a person, whether or not permissions regarding rights of personality have been obtained.

These are some of the ways that the UBE Group is responding to the ongoing development of IT and digital content.

# 01-3

## Information Disclosure and Communication

Basic Policies : • To disclose information to stakeholders appropriately and in a timely manner and expand communication channels  
• To appropriately manage information

### ● Relationships with Shareholders and Investors

#### Interactive Communication through IR Activities

UBE always conducts its IR activities in good faith, striving to promote understanding of the UBE Group's management strategy and business conditions in capital markets and to implement transparent management in order to earn the trust of the market. To this end, we disclose information in a timely, appropriate and fair manner. In addition, we are actively increasing opportunities for interactive communication with market participants, such as shareholders, investors and securities analysts, thereby promoting mutual understanding and incorporating market perceptions and evaluations into our management.

The following were the main IR activities conducted in fiscal 2014.

- Results briefings for institutional investors and securities analysts (Held after full-year results were announced)
- Web-based conferences for institutional investors and securities analysts (Held on the days that quarterly results were announced)
- Results briefings for individual investors (two times)
- Overseas IR (Individual visits to institutional investors in Europe, the United States and Asia (three times))
- Small-scale meetings held with the President (two times)
- Individual meetings with institutional investors and securities analysts (approximately 200 during the year)
- Facility tours (three times) and business briefing sessions (one time)

UBE creates many opportunities for direct dialogue with investors in and outside Japan, including conferences and individual meetings. In addition, UBE also provides a wide range of information through its website.

Furthermore, in the semiannual *UBE Business Report* for individual investors, UBE's business content and strategies are explained in an easy to digest format. UBE will continue to adhere to its commitment to timely, appropriate and fair information disclosure, and it will enhance interactive communication with stakeholders.

#### Ordinary General Meeting of Shareholders

UBE holds its ordinary general meeting of shareholders in Ube City, Yamaguchi Prefecture, where the Company was founded, in late June of every year. More than 1,000 shareholders attend this meeting each year. With the aim of creating an open, easy to understand event, we hold business briefings after the meeting that help shareholders understand UBE's business, including a brief explanation by the president of what progress has been made in the medium-term management plan.

#### Dividend Policy

UBE regards the payment of dividends as an important responsibility to be fulfilled by the Company for its shareholders and makes it a fundamental policy to pay dividends at a level that is commensurate with its earnings results. At the same time, we must also bear in mind the need to maintain an adequate level of retained earnings in order to ensure future business development and secure profits for shareholders on a medium- and a long-term basis. We determine the amount of dividends to be paid to shareholders based on these overall considerations. In line with the medium-term management plan, we are aiming to increase the payout ratio from the previous level of 20 to 25% to more than 30%.

In fiscal 2014, UBE paid dividends of ¥5 per share.

### Ratings

Under the previous medium-term management plan, UBE set "sustained improvement of its financial position" as one of its key management priorities, and, as a result, its financial indicators have steadily improved. UBE's current rating with the Japan Credit Rating Agency, Ltd. and that with Rating and Investment Information, Inc. are both A-.

#### Socially Responsible Investment (SRI) Index Rating

UBE has been selected by the FTSE4Good Global Index, a leading SRI index, since 2004. This index measures the performance of companies that meet globally recognized corporate responsibility standards in terms of environmental measures as well as employment, labor and human rights issues and is thus important as an investment selection standard for investors deeply concerned with CSR. In addition, Morningstar Japan K.K. has selected UBE to be included in the "Morningstar Socially Responsible Investment Index" (MS-SRI) since 2009. In this SRI index, the social character of companies is comprehensively rated in the four areas of corporate governance, the environment, social contributions and use of human resources. Out of some 1,000 companies evaluated in 2014, UBE was one of 150 selected for inclusion in the index.

### ● Intellectual Property Initiatives

#### Obtaining, Protecting and Using Intellectual Property Rights

Patents, trademarks, copyrights and other intellectual property (IP) are a source of competitiveness for UBE. Aiming to construct and utilize a stronger network of patents, UBE's Intellectual Property Department maintains a global IP management system that includes overseas Group companies. We exchange opinions with patent authorities in each country to establish methods for effectively obtaining and protecting IP rights and thereby better contribute to the Group's global business development. In fiscal 2014, we established IP handling rules for Group companies in Thailand. We also support the formulation of such rules at Group companies in Germany, Spain and other countries. In addition, at our business locations in China, the United States and South America, we steadily gather information locally and confirming proper ways to proceed. At the end of fiscal 2014, patents held by the UBE Group in Japan numbered approximately 1,580, and those in other countries totaled about 1,430, while trademarks registered in Japan came to around 330 and those outside Japan totaled about 270. Each year, UBE files around 400 new patent applications in Japan and 290 overseas.



A global IP meeting

## ● UBE Engages in Purchasing That Thoroughly Adheres to Its Purchasing Policies

### Approach to Green Purchasing\*1

In line with the Law on Promoting Green Purchasing, the UBE Group encourages its employees to choose eco-friendly products when purchasing stationery goods, copy paper, work uniforms, toner and other supplies. We aim to increase the use of eco-friendly copy paper to 100%; UBE's percentage already stands at 100%, while the UBE Group's percentage stands at 72%. In addition, vegetable oil-based ink has been used to print this CSR report on paper certified by the FSC.\*2 The UBE Group's green purchasing rate stands at 69%.

### Measures Concerning Green Procurement

The Group has established a CSR procurement policy\*3 and guidelines, and published them on its website in March 2013. Under the current medium-term management plan, we are advancing CSR procurement to effect improvements at all stages of the supply chain. In fiscal 2015, we are considering survey items and methods in preparation for a second survey of our business partners to better understand the status of their CSR activities.

## Basic Purchasing Policies

### Fair and Unbiased Transactions

We are committed to treating our suppliers in a fair and unbiased manner based on free competition and constantly search for opportunities to deal with new suppliers. We will cooperate with suppliers on a fair and equal footing and promote mutual understanding and relationships of trust on a long-term basis.

### Objective Selection of Suppliers

We will choose suppliers from the viewpoint of economic rationality by comprehensively examining their quality, prices and delivery schedules.

### Compliance with Laws and Regulations, and Confidentiality

We will comply with all relevant laws and regulations and with social norms, and we will protect all confidential information obtained through our purchasing activities.

### Green Procurement and Purchasing

We will give due consideration to environment-friendliness in our product selection and purchasing activities.

### CSR Procurement

UBE is advancing CSR procurement at all stages of the supply chain, including with suppliers, to increase its social credibility.

The UBE Group gives priority to suppliers that meet the following criteria.

- Have in place an internal framework for promoting CSR
- Emphasize quality and maintaining a stable supply
- Conduct business in a fair manner that honors corporate ethics, laws and societal standards
- Prioritize environmental considerations
- Exercise respect for human rights and safety and hygiene management
- Emphasize contributing to and communicating with society as well as information management and disclosure

## ● Internal Communication

With the aim of improving its CSR, the UBE Group encourages internal communication. We convene corporate briefings for corporate officers and managers as well as roundtable meetings for corporate officers, Group officers and employees. The casual exchange of opinions among participants is characteristic of these gatherings. In fiscal 2014, we held corporate briefings 13 times, with 1,611 participants, and roundtable meetings 10 times, with 91 participants. In addition, the Group utilizes its intranet, internal publications and other forms of communication to deepen mutual understanding. Such efforts foster a sense of unity within the Company and increase employee morale.

## ● Communication with Local Communities, Society, Government and Individual Organizations

### Responsible Care (RC)\*4 Regional Dialogue Meetings

Local member companies of the Japan Chemical Industry Association (JCIA) RC Committee hold RC Regional Dialogue meetings every two years in each of the Committee's districts with the purpose of building relationships of trust with local residents. UBE's chemical factories are members in the Yamaguchi western district, the Sakai/Senboku district and the Chiba district. In February 2015, the 10th annual RC Regional Dialogue Meeting was held in the Chiba district.

Furthermore, in addition to the biannual RC Regional Dialogue meeting, the members in Ube City hold an RC Regional Dialogue Conference every year, providing a valuable forum for interaction between industry, government, academia and the public. The 12th annual RC Regional Dialogue Conference in the Ube district was held in January 2015 at the Ube Chemical Factory, bringing together 50 attendees. Following an explanation of RC activities undertaken in the last year by participating companies, the Environmental Policy Office of the Ube City Environmental Department gave a presentation on environmental preservation initiatives in Ube City. Afterward, group discussions on expectations for local chemical companies were held.

Going forward, we will continue to prioritize dialogue with local communities and implement RC activities to foster harmonious coexistence and mutual development with local communities.



12th Annual RC Regional Dialogue Conference in the Ube district  
Group discussion

## Glossary

\*1. Green purchasing: To purchase products and services that have minimal environmental impact from suppliers who are committed to reducing their environmental impact, considering not only the quality and price of the products, but also the environment

\*2. FSC: Forest Stewardship Council

\*3. CSR Procurement: The procurement of goods and other items by companies using a set of criteria based on the status of supplier's CSR measures.

\*4. RC: Responsible Care. See page 36.

### Tours of Local Industrial Facilities

The UBE Group once again participated in tours of local industrial facilities entitled "Social Tours for Grownups" in fiscal 2014. These tours are conducted by a local council established to promote industrial tourism in the cities of Ube, Mine and Sanyoonoda. Various tours were undertaken at UBE Group facilities, with 1,712 participants. Activities included a tour showcasing the production of cement (Isa Cement Factory and highlighting roads used exclusively by UBE) and another highlighting the Okinoyama Coal Mine and its founder Sukesaku Watanabe (UBE-i-Plaza and the Okinomiya Coal Mine electric powered mine shaft).

### Participation in Local Events (Main Events)

UBE's offices and facilities participate in various local events to promote harmonious coexistence with local communities.

#### Chiba Prefecture: 2014

June: 12 UBE Group employees participated in the Goi-Rinkai Festival

#### Yamaguchi Prefecture: 2014

June: A team of five UBE Group employees competed in the 19th Ono Lake Community Boating Contest



July: 128 UBE Group employees, divided into 14 teams, competed in the 21st Annual Ube City Marine Day Cutter Race.



September: 31 UBE Group employees participated in the 1st Annual Mine Lantern Night Festival (Mine City)



November: More than 1,000 participants from the UBE Group, comprising Group employees and their families, took part in the 63rd Ube Festival.



### Business Facility Tours

We invite various stakeholders, beginning with nearby schools, to tour our business facilities. In fiscal 2014, the number of people participating in tours at the Company's comprehensive information center in the Ube District, UBE-i-Plaza, reached 7,955. In July 2014, the Chiba Petrochemical Factory

held a facility tour for 108 local elementary school students. In January 2015, the Sakai Factory held facility tours for 65 students attending a nearby technical high school, and in April and December 2014 it invited a total of 68 local residents for factory tours and discussions.



Facility tour for a local senior association (Sakai Factory)

### Other Community Activities

At all our offices and facilities, we strive to promote harmonious coexistence with local communities through such efforts as cleanup and litter collection in areas near our facilities and participation in blood donation programs.



Cleanup of public roads (Kanda Cement Factory)

### UBE-i-Plaza

In 2007, to mark the Group's 110th anniversary, UBE-i-Plaza was established as the UBE Group's comprehensive information center in the Ube District, where the Group was founded. In the center's presentation room, visitors may watch videos about the UBE Group's history and businesses. The display room showcases the Group's past, present and future and is divided into zones with the themes of corporate history, products and technologies, cutting-edge technology, organization and activities, and the future. The center thus provides a look at the UBE Group's traditions as they have been handed down for more than a century. In August 2014, the cumulative number of visitors to UBE-i-Plaza passed 50,000.



### Local Newsletter *Tsubasa*

Since November 2012, the UBE Group has been issuing *Tsubasa*, a newsletter for local residents. This newsletter is distributed twice a year to residents of Ube, Yamaguchi Prefecture, where the UBE Group was founded. It is delivered directly to people's mailboxes, inserted in newspapers, and offered through both UBE-i-Plaza and UBE's website. Also through the website, in May 2014 UBE began offering a special online version of *Tsubasa* that includes content from the perspectives of the authors that could not be included in the print version.

# 01-4 Human Rights and Labor

- Basic Policies :
- To respect the human rights of people who are affected by the Group's corporate activities
  - To respect the human rights of employees, including those of partner companies

## Fundamental Philosophy

### Respect for Human Rights

In its Action Guidelines for Business Conduct, the UBE Group has stated that it will respect human rights and develop healthy, bright and motivating workplaces. We regard respect for human rights as a fundamental rule guiding the corporate activities of the UBE Group.

### Ideal Personnel

The UBE Group gives top priority to human resources among its management assets, and it is committed to developing highly skilled professionals who can act independently and produce results. The basic image that the UBE Group promotes for individual employees is that of someone who has unparalleled skills, sets their own goals, works independently and takes on new challenges while being unafraid of change.

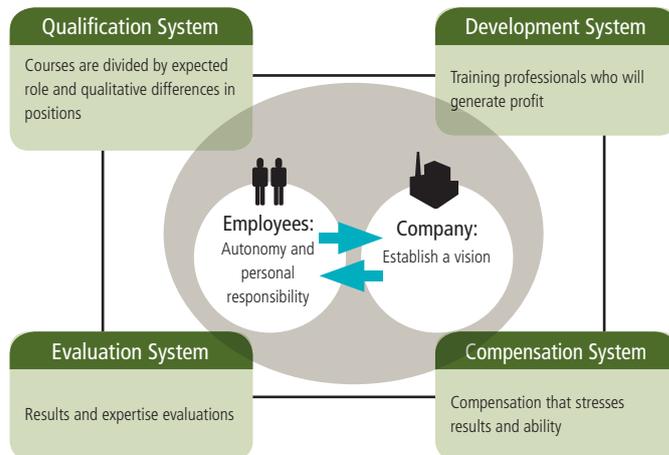
### ● Personnel System

UBE has introduced an evaluation system that incorporates a goal management system and a performance-based component. By organically linking the development, evaluation, qualification and compensation systems, and impartially evaluating individual efforts, UBE seeks to create a workplace that is challenging and motivating for every employee.

### ● Human Resource Development Initiatives

In order to develop superior human resources, we work to enhance the following key areas: 1) on-the-job training (OJT); 2) off-the-job training (workshops, etc.); and 3) self-improvement support programs. At the same time, we maintain support systems so that all UBE employees can fully exercise their abilities in carrying out their work. Specifically, to assist in employee career development, every year employees prepare Career Development Sheets. Opportunities are provided for interviews about their careers with their superiors using these sheets, and employees are rotated through various posts to enable them to gain a broad perspective and expand their areas of expertise. Furthermore, UBE updates the content of off-the-job training, consisting mainly of workshops, based on changes in the external environment.

## The Interconnecting Aims of Each System



## Strengthening Global Human Resource Development

Given that overseas business development is expected to expand going forward, UBE is actively fostering globally capable human resources. The key points of these efforts are 1) raising the level of language abilities 2) enhancing opportunities for overseas experience 3) reinforcing cultural sensitivity, and 4) cultivating global business leaders. Based on these points, we are conducting various types of global training to increase awareness and ambition among employees with regard to foreign languages and global business.

In addition, human resource managers from Thailand, Spain and Japan gather at the Group's annual Global Human Resources Meeting to exchange information on human resource development and personnel systems. Furthermore, by reviewing personnel and evaluation systems, we are responding to globalization on the human resources front. In fiscal 2014, we established a set of human resource principles for the entire UBE Group to clearly state our Groupwide approaches to human resource management and promote the sharing of relevant values across the global UBE Group.

We are also actively promoting personnel exchanges with overseas UBE Group companies. Through joint training, exchanges and dispatches to Japan of young employees, we provide Group employees with real work experience in other countries, helping to cultivate global mindsets.

## Training System Overview

		Level-Based Training	Training by Theme	International Business Personnel Development	Support for Self-Improvement	Independent Training	Affiliates
Executives		New executive training					
Manager		Upper-level management training	Refresher courses Training on various themes	Global business leader training program	Various types of home-study courses and assistance for acquiring official certifications	TOEIC exams	Company- and division-specific training
		Mid-level management training					
		New management training					
Generalist 1	Key employee 1	Key employee twentieth-year training	Elder training	Business English training			
	Key employee 2						
	Key employee 3						
Generalist 2	Key employee 4	Career design training		Cultural sensitivity training			
	Key employee 5						
	Key employee 6						
Generalist 3	Key employee 7	Follow-up training for generalists Follow-up training for key employees		Overseas trainee system			Group company new executive training
		Training for newly hired generalists Training for newly hired key employees		Overseas MBA programs			



Participants in global business leader training holding their training completion certificates

### ● Quality Working Environments

In order to enable all employees to fully display their abilities, the Group promotes comfortable working environments.

#### Respect for Human Rights at Workplaces

We have established the Human Rights Education Promotion Committee as part of efforts to provide human rights education to employees, including training for company officers, training divided by workplace and rank, and lectures by external instructors. We implement Groupwide training programs via e-learning to ensure that all employees have a proper understanding of and fully recognize human rights issues. Such initiatives help ensure work environments where all employees are respected as human beings.

#### Work-Life Balance

We are working to improve systems to allow employees, regardless of gender, to continue working in ways that make sense for them at various stages of their lives and to create a climate that ensures that employees are able to take advantage of such systems.

#### Support for Childcare and Nursing

UBE has in place several systems to accommodate employees who require time to take care of their children or other family members. These include childcare leave, nursing care leave and time off, reduced working hours, child nursing leave, flextime, and limited overtime systems.



The "Kurumin" Next-Generation Certification Logo

Furthermore, based on the Act on Advancement of measures to support Raising Next-Generations Children, UBE has developed a main activity plan for general businesses to help ensure an employment environment that allows employees to use their abilities to the fullest while both working and raising children. To this end, UBE also strives to ensure that work conditions are wide-ranging and flexible. Since 2012, part of the childcare leave has been paid, and UBE has undertaken initiatives to allow male employees to actively participate in child rearing. In November 2013, UBE received "Kurumin" next-generation certification as a company that is friendly to child rearing. The action plan launched in fiscal 2015 lays out the following three goals: 1) implement measures to firmly establish support systems for employees that are taking care of children or other family members while working and facilitate the flexible use of such systems, 2) enhance childcare support, and 3) expand social contribution programs related to raising the next generation.

### Incentives for Taking Annual Paid Vacations

As an incentive for getting employees to systematically take annual paid vacations, not only do we ask employees to set scheduled vacation dates in advance for every six-month period, but we also take steps to reduce actual working hours by setting an annual paid vacation incentive day.

### Flexible Working Systems

We have introduced flextime, self-managed work\* and other systems to enable employees to work in a flexible and efficient manner. We are also committed to appropriately managing employees' working hours. For example, we provide guidance for departments with long overtime work hours in implementing measures to help reduce these hours and arrange consultations between employees and industrial doctors.

\* A system that entrusts employees to make their own decisions regarding how to undertake their duties and the allocation of work time in order to achieve work-related goals.

### Leave for Volunteer Activities

The Group has established a system that enables UBE employees to use accumulated leave time for volunteer activities that contribute to society or local communities.

#### Main Usage of Work-Life Balance System (Fiscal 2014)

System	Description	Number of Employees Who Used It
Paternity leave	• Employees whose wives have given birth can take four days of leave.	122 (79% of those eligible)
Childcare leave	• Such leave can be taken until the day before a child's first birthday (in accordance with legal standards, the period of leave may be extended by up to six months). • The first seven days of leave are fully paid.	46 (including 32 men)
Child nursing leave	• Until children complete the third grade of elementary school, employees can take leave to nurse children. Five days per year per child can be taken per year. • Employees can use this leave in half-day units.	4 (including 2 men)
Shortened working time	• Until children complete the third grade of elementary school, work time can be shortened by up to two hours per day, on an as-needed basis.	23 (including 0 men)
Refresh leave	• Employees over the age of 50 who have worked at UBE for over 15 years can take five days of "refresh" leave. • A ¥100,000 support stipend is paid when leave is taken.	94 (90% of those eligible)

### ● Working with the Labor Union

UBE maintains labor agreements with the Ube Industries labor union and seeks to promote smooth labor-management relations. Through the Central Labor-Management Conference, in which members of top management participate, we engage in open discussion aimed at promoting understanding of management policy and plans while reflecting the opinions of union members in management.

# Promoting Diversity

UBE respects diversity among individuals and values as it strives to foster a corporate culture rich in creativity and ambition.

## ● Initiatives to Diversify Human Resources

UBE recruits and employs personnel from a wide array of fields regardless of social background, gender or nationality, and works to create systems and work environments that allow all UBE employees to exercise their abilities and excel.

UBE Employee Data (as of March 31, 2015)

	Number of Employees (% of total)		Number of Managers (% of total)		Average Age	Average Number of Years at UBE
Male	3,489	93.6%	942	99.2%	41.4	15.8
Female	237	6.4%	8	0.8%	39.9	15.9
Total (average)	3,726	100.0%	950	100.0%	41.3	15.8

## Hiring Breakdown (Number of People)

Fiscal year	2012	2013	2014
New graduate hires (generalist positions)	55	54	50
Women	5	10	7
Men	50	44	43
New graduate hires (key employee positions)	69	58	30
Women	6	6	2
Men	63	52	28
Mid-career hires	84	43	26
Hirees with disabilities	2	5	2

## Helping Women Succeed

As a result of Ube Industries Central Hospital becoming a medical services corporation (October 2014), the percentage of UBE Group employees and managers that are women fell to 6.4% and 0.8%, respectively. Going forward, we will increase the number of women we recruit, improve the workplace environment, and raise awareness to expand opportunities for women to excel.

## Voluntary Action Plan to Increase Women in Officer and Management Positions (Formulated October 2014)

UBE regards promoting diversity as an important management strategy. As part of our efforts in this area, we are advancing measures to hire and promote women. Currently, less than 1% of management positions in the Group are held by women. We aim to more than triple that proportion by the end of fiscal 2020. Furthermore, to increase the hiring of women, we are implementing the following initiatives.

- Ensure that at least 20% of new graduates hired as generalists are women
- Expand employee support related to such life events as childbirth childcare, and nursing elderly family members, and create a culture that makes such support easy to use
- Improve work environments to expand the job categories available to women
- Implement training for female employees and for managers
- Reduce overlong working hours

## Employment of People with Disabilities

The UBE Group actively undertakes measures to promote the employment of people with disabilities. We have organized a network to support the employment of people with disabilities Groupwide. To this end, the Group leverages relevant expertise accumulated by our special-purpose subsidiary, Libertas Ube, Ltd., established in 1991.

## Percentage of Employees with Disabilities



## Leveraging Non-Japanese Human Resources

As globalization continues, we are expanding personnel exchanges with the Group's non-Japanese employees based overseas and actively hiring foreign nationals in Japan in order to leverage their experience with different value systems and cultures.

## Employing Seniors

We are rehiring employees who have reached standard retirement age as senior employees and rethinking programs and other aspects of the workplace environment as well as working to change the mindsets of senior employees so that they can take advantage of their experience and skills to work with enthusiasm and dedication.

## Initiatives to Help Women Excel

Initiatives in fiscal 2014 aimed at helping employees learn about the necessity of diversity and ways to communicate included seminars for managers in April and July 2014 and training for female employees in March 2015. Going forward, we will use such seminars and training to expand interpersonal networks, motivate female employees, and implement educational activities to promote the active participation of women throughout the Group.



Seminar for managers on supporting women in the workplace



Inter-department training for female employees (Cement & Construction Materials Company)

● **Developing a Comfortable Workplace and Undertaking Initiatives to Maintain and Improve Employee Health**

**Meet and Greet Campaign**

The Groupwide Meet and Greet Campaign aims to encourage all employees to exchange words of greeting and encouragement as a way of promoting better communication and openness in the workplace. In fiscal 2014, we once again implemented this greeting campaign at all Group companies.



Meet and Greet Campaign (Ube-Fujimagari Factory)

**Mental Health Care**

The UBE Group works together with industrial physicians, nurses and other health specialists to maintain the mental health of its employees. In fiscal 2014, we launched an e-learning course to deepen knowledge of mental health. Other efforts to enhance mental health measures included counseling through external institutions, support for returning to the workplace after leave and lectures for Group companies.



Mental health seminar (Kansai Ube Co., Ltd.)

**Improving Employees' Dietary Environment**

To raise employee awareness with regard to food and nutrition, we provide nutritionally balanced meals at employee dormitories and canteens. In fiscal 2014, to encourage more employees to use these services, we held events featuring special menu items, such as a curry fair at which employees could enjoy a variety of curries, at each canteen. These venues are used not only to improve nutrition, but also as spaces for employee mingling.

**Classes on Quitting Smoking**

UBE continued seminars on quitting smoking at various offices and facilities in fiscal 2014. The Ube Cement Factory held a contest related to quitting smoking, which prompted many employees to try.

**Measures to Counter Lifestyle-Related Diseases**

To reduce risks of illnesses, such as for illnesses related to the brain or heart, UBE uses the results of employee health checks to recommend additional examinations as needed and to diagnose health risks. In fiscal 2014, efforts to provide instruction on improving lifestyle habits—based on the Ministry

of Health, Labour and Welfare's specified health checkups and specified health guidance measures—again yielded results, including a drop in the rate of employees who fall under the criteria of the specified health guidance measures compared with when the system was first adopted. At the Ube Chemical Factory, as part of efforts to promote health, we held the Chemical Health Festival in March 2014, featuring fitness tests, health-related lectures, and exercise classes.

**Overseas Bases**

To safeguard the health of employees and their families stationed overseas, UBE provides consultations with industrial doctors, conducts surveys on medical circumstances, and offers education about infectious disease. In fiscal 2014, UBE's industrial doctors visited Group facilities in East Asia, namely South Korea and China.



Chemical Health Festival (Ube Chemical Factory)

*Guest Message*



**Kouji Mori**

Professor, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Japan

I commend UBE's ongoing efforts to maintain and improve the health of employees, mainly through the Health Care & Support Center. These efforts are contributing to the maintenance of a rich platform, in terms of both programs and the staff who implement them. Working environments are expected to change enormously going forward. Dealing with the stress created by such changes and understanding the health status of employees in the aging workforce are growing more important as matters of safety assurance. Furthermore, to be regarded as truly global, Japanese companies must now demonstrate responsibility not only for the health of Japanese employees stationed overseas, but also local employees at such locations. Going forward, it will be important to utilize the current platform to implement a focused response to the various issues that arise. As it does so, I hope to see UBE become a model company in terms of health-oriented management through active coordination with data health plans\* being developed by health insurance associations.

\*Activities conducted by health insurance associations under the guidance of the Ministry of Health, Labour and Welfare aimed at improving efficiency in healthcare by analyzing health insurance claims and other data.

# 01-5 Social Contribution

Basic Policy : • To conduct social contribution activities toward the creation of a sound and sustainable society

## ● Support of Culture and Art

UBE supports the activities of the UBE Foundation and the Watanabe Memorial Culture Association in the form of regular donations and human support.

### The UBE Foundation

The UBE Foundation (Director: Michio Takeshita) was established in 1959 as the Watanabe Memorial Science Foundation at the bequest of the late Takaji Watanabe, the founding chairman of UBE. The Watanabe Memorial Science Foundation was renamed the UBE Foundation in 1997. In 2010, the UBE Foundation was certified as an organization operating in the common interest by the Japanese Cabinet Office and registered as a foundation incorporated in the public interest. In Japan, the Foundation aims to promote academic research activities, improve research facilities and assist academic researchers in their activities in order to contribute to the future development of academic culture. In fiscal 2014, the 55th annual Ube Foundation Grant was awarded to 13 recipients from a total of 135 applicants. At the awards ceremony, held in June 2015, Professor Kazunari Sasaki, director of the Kyushu University International Research Center for



The Ube Foundation Grand Prize award ceremony

Hydrogen Energy, gave a keynote address entitled "Progress Toward an Eco-Friendly Hydrogen-Based Society."

### Watanabe Memorial Culture Association

Established in 1936 as a private bequest of the late Sukesaku Watanabe, the founder of UBE, the Watanabe Memorial Culture Association (Director: Michio Takeshita) was registered as a foundation incorporated in the public interest in October 2014. The association promotes the welfare of the citizens of Ube City and supports a variety of cultural and art-related activities that include efforts to bolster local culture as well as lectures and concerts. In October 2014, the association hosted a community concert with the Japan Philharmonic Orchestra. The association donated a total of ¥800,000 to the Watanabe Memorial Book Collection and the Watanabe Memorial Culture Association Picture Book Collection in February 2015. The Watanabe Memorial Book Collection, established in the Ube City Library in 1953, contains 2,213 volumes, primarily in the field of art. Moreover, the Picture Book Collection, which lends books to kindergartens and childcare centers, has reached 4,160 volumes. In April 2014, the association donated funds to support seven selected cultural organizations in the UBE District



Support funds donation ceremony

## Charity Concert by the Japan Philharmonic Orchestra

In 2014, we invited the Japan Philharmonic Orchestra to perform the 7th annual UBE Group Charity Concert. We also opened the Charity Concert's dress rehearsal, free of charge, to 510 students from local elementary and junior high schools and 40 students from local schools for the disabled and their respective guardians and teachers. Furthermore, in cooperation with Pioneer Corporation, we installed that company's systems for experiencing sound through vibrations felt through the body in certain seats, allowing hearing impaired audience members to experience the concert. All of the proceeds from the concert were donated to local organizations and schools. Specifically, five municipal junior high schools in Ube City were each given a wind instrument, while the Ube City Folk Orchestra and the Ube Music Appreciation Society received monetary donations.

The day before the performance, members of the Japan Philharmonic Orchestra participated in a "hands-on concert" for patients admitted to Ube Industries Central Hospital and the Yamaguchi University Hospital.



"Hands-on concerts" (Ube Industries Central Hospital, Yamaguchi University Hospital)

### From the Watanabe Memorial Culture Association



Music clinic for members of brass band clubs at local municipal junior high schools



Mini concert attended by more than 200 local residents



Sign language interpreter relaying comments on the music from the conductor before the performance



The 7th annual UBE Group Charity Concert (October 2014)

## ● Education and Social Contributions

### Chemistry Experiment Events for Children

Every year, UBE invites schoolchildren to attend chemistry experiment programs aimed at helping children experience the fascinating world of chemistry by introducing them to UBE's advanced technologies. In fiscal 2014, the Ube-based Organic Chemistry Research Laboratory hosted the 26th Annual Summer Holiday Junior Science Lesson in at Ube Industries in Ube City. Participants learned about batteries and then competed to make the best one. In addition, the Chiba-based Organic Specialty Materials Research Laboratory held hands-on experiment events in which participants made kaleidoscopes using polyethylene film in July at the "Miracle" Science and Technology Museum in Koshigaya City, Saitama Prefecture, and in August at the Dream/Chemistry-21 Children's Chemistry Experiment Show in Chiyoda City, Tokyo.

Furthermore, in March 2015, at Tsukuba Science Edge 2015 in Tsukuba City, Ibaraki Prefecture, the Group conducted thermal insulation experiments on *UPILEX*, a material featuring excellent heat resistance that is used in satellites.



"Miracle" Science and Technology Museum (Saitama Prefecture)

Summer Holiday Junior Science Lesson (Ube Industries)



### Guest Message

#### Katrin Schueller

University of Bonn (Germany) Department of Japanese Studies, Faculty of Asian Studies

#### My Internship Experience

Every day of my internship at Ube Industries was stimulating. Before my internship, I imagined Japanese companies to be very rigid, with employees quietly concentrating on their work. But when I got there, it was a bright, fun place to work. I myself was nervous and rigid, but everyone was kind to me. As a result, I was quickly able to settle in, and my impression of Japanese companies changed completely.

The point of this internship was to learn both necessary professional skills and about what it means to work. For my presentation in the Investor Relations & Public Relations Department, I got to learn business Japanese, which until then I had few opportunities to use, and to address professionals for the first time. In the Human Resources Department, I attended a job seminar for upcoming graduates, giving me a chance to experience it with other students and to think about what working in a job can mean. These experiences were of great value to me, and I really felt that they helped me grow.

## Internships

The UBE Group offers internships for undergraduate and graduate university students, technical college students and high school students. In fiscal 2014, the UBE Chemical Factory, UBE Cement Factory and UBE Industries Power Generation Plant accepted 13 students from 11 technical colleges and universities in the Chugoku, Shikoku and Kyushu regions of Japan for five days of practical training.

In addition, the Chiba Petrochemical Factory and Sakai Factory, as well as Group research facilities and companies accepted interns.

In fiscal 2014, for the first time, the Tokyo Head Office also accepted students studying abroad in Japan from other countries as interns.



Internship (UBE Industries Power Generation Plant)

## Volunteering in Afforestation and Flower Campaigns

In November 2014, the UBE Group participated in the Seventh Forest Creation Experiential Activity for Water Conservation, held in the Akiyoshidai International Art Village and sponsored by the Mine City Office of Yamaguchi Prefecture's Agriculture & Forestry Department, with 99 employees taking part in the thinning and logging of bamboo. These activities help to improve the water retention of the woodlands around Ono Lake, an important source of water for local residents and companies, and prevent flooding. In addition, the gardens planted every year by employees within the premises of UBE Group sites won seven awards in flowerbed contests held by Ube City in fiscal 2014.

### Fiscal 2014 Ube City Flowerbed Contests

Ube Chemical Factory	Spring, Autumn	Flower gardening master division
	Ube City Greening Promotion Committee Award	
Ube Material Industries, Ltd.	Spring, Autumn	Flower gardening master division
	Ube City Greening Promotion Committee Award	
Ube Machinery Corporation, Ltd.	Spring	First Place Award (Spacious flowerbed division)
	Autumn	Third Place Award (Spacious flowerbed division)
UMG ABS Ltd.	Spring	First Place Award (General flowerbed division)



First Place Award (Ube Machinery Corporation, Ltd.)

# Social Contribution (Overseas Initiatives)



## Initiatives in Spain



The UBE Group in Spain (controlling company: Ube Corporation Europe, S.A. (UCE)) continued various initiatives to enhance communication with local communities in fiscal 2014.

### 20 Year Anniversary

July 2014 marked the 20th anniversary of UCE's addition to the UBE Group. To mark this occasion, we held a commemorative ceremony in the Castellón Auditorium to which we invited 500 guests, including the President of the Valencian Community, the Mayor of Castellón and the Consul General of Japan in Barcelona along with UCE employees and their families. Statements of UBE's commitment and gratitude to the local community were followed by a performance by the world-famous Japanese *taiko* performing arts ensemble Kodo. The event, which gave participants the opportunity to enjoy Japanese culture, was registered as one of the official events marking the 400th anniversary of the establishment of relations between Spain and Japan. Furthermore, plant open days for employees and their families, also part of the celebratory events, attracted a total of 360 participants over two days.



Article about the events in the Spanish newspaper *Levante de Castellón* (used with permission)

### ● Interacting with Local Communities

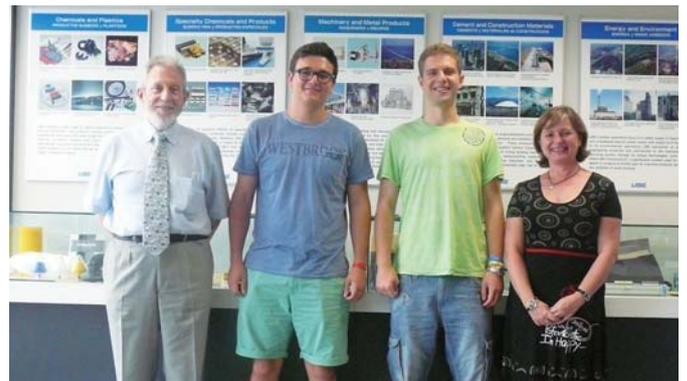
In 2014, the UCE Group officially became a member of the Castellón CSR Forum. This forum is made up of companies and organizations that have committed to principles of CSR in their businesses and to promoting CSR in their local communities. In November 2014, UCE held a presentation for local companies about human resources and diversity. In addition, UCE supports local communities through discussions and seminars on the investment environment aimed at attracting foreign companies—one of the goals of the Valencian Community's government—as well as through lectures about internationalization at business schools, panel discussions about strategies for economic recovery, and other activities. In addition, for the third consecutive year, UCE supported the collection of food donations for the local NGO Father Ricardo's Community Kitchen, continuing volunteer efforts begun by UCE employees. Other employee-led efforts supported by UCE include plastic bottle cap recycling, used mobile phone collection and blood donation.

### ● Support for Education and Culture

We continued to support a program of cultural exchange between Ube City and Castellón. We also provided support for a wide range of cultural and sporting activities, including an exhibition entitled *Letters of Thanks* by Japanese artist Chiharu Shiota at the Castellón Contemporary Art Center a drawing contest mainly for high school students in the Valencian Community

held at I.E.S. Joan Bautista Porcar, a local high school; a guitar contest in Benicàssim; and a festival in Castellón. Academic projects that we support include a solar car team at a high school in Benicarló and graduate courses in energy saving at Jaume I University, and we also provide ongoing economic support to Caritas Internationalis, the Red Cross Society, Afanías and other local NGOs.

In 2014, we actively accepted a total of over 150 visitors, including local and regional governmental officials, representatives of other companies, and students and instructors from local schools and universities, fostering awareness of UCE's products and management policies.



The first and second place winners of a Science Olympiad visit UCE



Factory tour for engineering students at the University of Alicante



Local volleyball team sponsored by UCE

### ● Biodiversity Initiatives

In tandem with its own measures to preserve biodiversity, UCE worked with local government to provide economic support for the maintenance of the Mijares River, which lies about 10 km from UCE's factories. Removing invasive species and planting endemic plant species along the river is helping to create an enjoyable space for local residents.

## Initiatives in Thailand

The UBE Group in Thailand\* strives toward active communication with local communities based on the idea that the UBE Group is an integral part of the community.

\*The UBE Group in Thailand (AOU: Asia Operational Unit):

UBE Chemicals (Asia) Public Company Limited  
 THAI SYNTHETIC RUBBERS COMPANY LIMITED  
 UBE Fine Chemicals (Asia) Co., Ltd.  
 RAYONG FERTILIZER TRADING CO., LTD.  
 UBE Technical Center (Asia) Limited  
 UBE (Thailand) Co., Ltd.

### ● Interacting with Local Communities

#### Protecting Animal Habitats

To protect the local environment and the wild elephants that live there, on August 23 and 24, 2014, 137 participants from AOU (comprising employees and their families) and 70 other members of the local community planted an 6,400 m<sup>2</sup> area in Khao Chamao National Park with banana trees and scattered salt, which is essential to the elephants' health.



Group photo after planting trees



Scattering salt for wild elephants

### ● Support for Education and Culture

#### Open House Meeting

On May 28, 2015, an open house meeting was held at the welfare building of the UCHA Rayong Plant to encourage dialogue with the local community and Rayong industrial authorities. The meeting was held in advance of annual turnaround scheduled for June 2014 and allowed local residents to voice their concerns and questions and receive explanations. Employees, 56 local residents and representatives from the Rayong industrial authorities participated, fostering communication.



Open house meeting

#### Support for Map Ta Phut Technical College

AOU works with petrochemical companies in Rayong and the Ministry of Education as a supporting sponsor for students at Map Ta Phut Technical College, specifically supporting projects aimed at enhancing the abilities of the college's students who have undergone advanced vocational training. Every year, AOU accepts four to six students for a semester of training in its maintenance divisions. The petrochemical companies involved held a ceremony for the presentation of funds to support such programs on May 30, 2014, at the Kameo Grand Rayong Hotel.



Presentation ceremony

### ● Sports Promotion and Support

#### PTTGC-UBE Rayong Marathon

The PTTGC-UBE Rayong Marathon, now a staple annual event aimed at promoting health and attracting tourists, was held on November 30, 2014, in Ban Phe, Rayong.

The event was divided into a full marathon (300 runners), half marathon (450 runners), mini marathon (1,300 runners) and a Fun Run (700 runners). Approximately 500 local residents, including many UBE employees, volunteered to organize the marathon.



The half marathon starting line

# 01-6 UBE Group Social Contribution Activities

## Hagimori Industries, Ltd.

Locations: Head Office (Ube City), Business Offices (Ube City, Mine City)

### ● Our Safety Initiatives

Since our founding, Hagimori Industries, engaged mainly in the manufacture and sale of ready-mixed concrete, has been closely involved with the local community and has enjoyed tremendous support from its stakeholders. We have striven to cultivate the technological development prowess needed to precisely meet market needs while staying focused on safety. In November 2013, we launched a small groups for safety initiative. The impetus for this came from the incidence of minor but frequent accidents in front-line operations that our regular risk assessments weren't able to identify. We are implementing these initiatives with the aims of raising team safety awareness on a day-to-day basis and staying accident-free.

The small groups for safety initiative focuses on activities in six areas: spreading awareness of the Health and Safety Committee's activities, identifying risks, proposing improvements, predicting dangers using examples of accidents, further enhancing hazard identification activities, and clarifying the implementation status of cleanliness and orderliness activities. Team leaders meet once a month to report on their teams' activities in these six areas. At these meetings, emphasis is placed not just on presenting, but also to listening closely to the reports from other teams. This is because thinking critically about others' activities is key to achieving their own goals.

The effects of these initiatives have included 1) greater awareness of the Health and Safety Committee's decisions at the front line, 2) the construction of a framework for bringing opinions from the front line to the attention of management and 3) better sharing of understanding of risks due to exchange of opinions at meetings.

Safety initiatives can sometimes become too focused on creating safety records. Going forward, we will make it our motto to focus on real activities, not records, and to talk to one another in order to create safer, more secure and comfortable workplaces as part of the UBE Group.



Author:  
Director, Executive officer,  
General Manager  
(Safety Management)  
Kunikazu Yoshioka



Small groups for safety activities



Cleanup activities

## UBE-MC Hydrogen Peroxide Limited.

Manufacturing base: Ube Factory (Ube City)

### ● Providing a Stable Supply of Eco-Friendly Hydrogen Peroxide

UBE-MC Hydrogen Peroxide specializes in the manufacture of hydrogen peroxide. Founded in 1989 as a joint venture between Finnish company Kemira Oyj and Ube Industries, we began production at the Ube Factory in 1992. Later, Kemira pulled out, and Mitsubishi Corporation acquired a stake in its place. Reflecting this change, in 2008 the company name was changed from Kemira-Ube, Ltd. to UBE-MC Hydrogen Peroxide Limited.

Hydrogen peroxide breaks down into just water and oxygen, making it an extremely clean, environment-friendly product. It is used as a bleaching agent for pulp, recycled paper and other natural fibers and is widely used as substitute for chlorine bleach. Hydrogen peroxide is also used in the chemical, electronics, metal and other industries in a broad range of applications, including as an ingredient for organic and inorganic compounds, an etching agent for printed substrates, a semiconductor cleaning agent and metal surface treatment agent.

In recent years, the use of hydrogen peroxide has expanded to include such applications as odor and color removal from sewage and industrial wastewater, as a biofouling preventive agent and as a soil improver. Hydrogen peroxide is thus very useful in environmental preservation.

Today, hydrogen peroxide has become indispensable to Japanese industry, and it is therefore crucial that manufacturers such as ourselves maintain safe operations and stable supply. Our corporate motto is Safe Operations and Stable Supply, and through the companywide implementation of safety initiatives, we have maintained an accident- and disaster-free record since our founding. In addition, with eight stock points (staging bases) across Japan, two dedicated carrier vessels and 27 tanker lorries, our distribution network is focused on the stable supply of product to customers.

Going forward, we will continue to contribute to society through the stable manufacture and sale of eco-friendly hydrogen peroxide.



Author:  
Shigeru Yanehashi  
General Manager, Ube Factory  
General Manager, Technology  
Department



The Keiyu Maru, a hydrogen peroxide carrier



Tanker lorry

# 02 Initiatives for Environment and Safety

**At the UBE Group, conserving the environment and protecting health and safety come first in its business operations.**

**This emphasis is necessary in order to provide products and services that make people's lives better and to achieve solid and sustainable growth.**

## **UBE Group Environmental and Safety Principles**

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

The UBE Group shall pursue the following vision in order to fulfill its leadership role and shall work to improve the safety and the quality of the environment among all of its Group companies through the publication of performance reports and the implementation of dialogues with society.

### **• Operational Safety**

Ensuring operational safety shall be the priority in all areas and activities under UBE's commitment to respect human life.

### **• Process Safety**

Maintenance of process safety shall be part of its basic mission as a manufacturer.

### **• Environmental Preservation**

As a responsible corporate citizen, the UBE Group shall act positively to protect and improve both community and regional conditions and work for the preservation of the global environment.

### **• Product Safety**

The UBE Group shall pursue its corporate responsibility in providing its customers and the public with safe and reliable products.

### **• Health Management**

The UBE Group recognizes that maintaining and promoting the health of its employees is the basis of corporate and social vitality.

Revised in April 2015

**Yuzuru Yamamoto**  
President and Group CEO, Representative Director



# 02-1 Environment and Safety Management

## ● Environment and Safety Promotion System

The UBE Group has established the Group Environment and Safety (ES) Committee and the Group Product Safety (PS) Committee as the top decision-making organizational units for the promotion of the Environmental and Safety Principles. In addition, the Group has established the Group High-Pressure Gas Safety (HPGS) Committee for decision-making regarding the process safety measures outlined in the ministerial order related to the High Pressure Gas Safety Act. These committees comprise members of the Group Management Committee, which is headed by the Group CEO (the president), and decide and revise policy and measures related to Group issues in the areas of the environment, safety and health, product safety, and process safety.

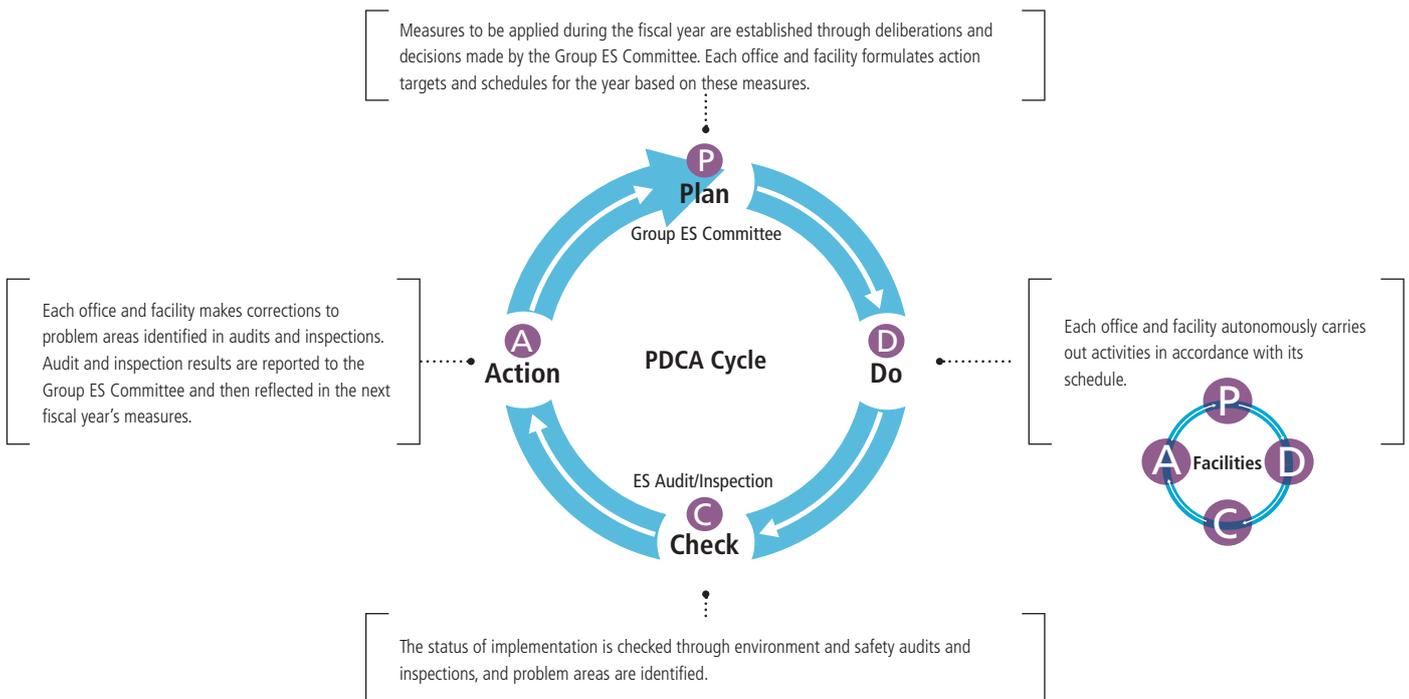
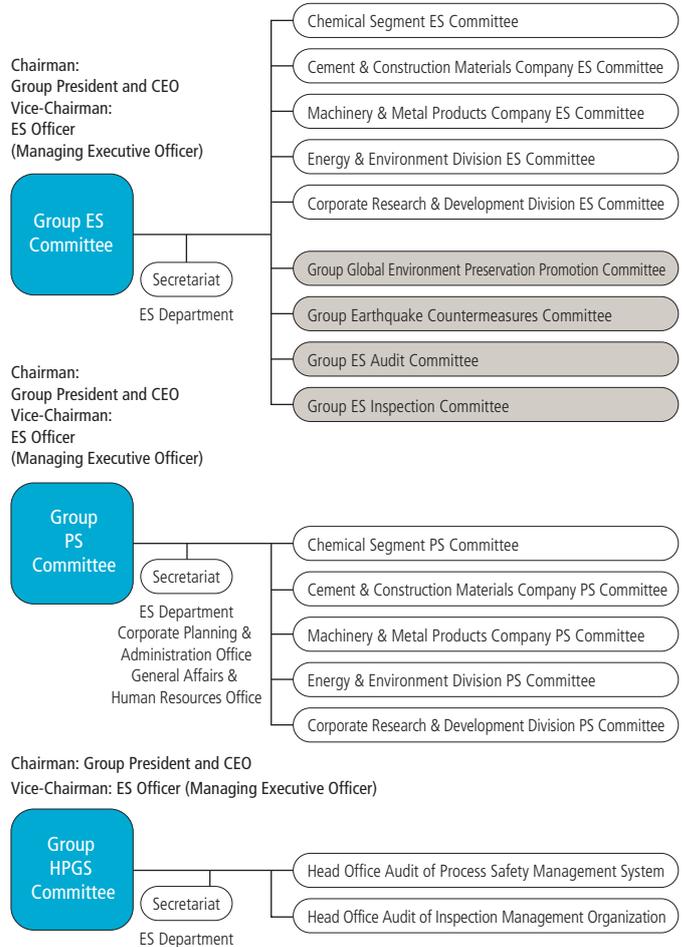
The Group ES Committee and the Group PS Committee have established subcommittees for each segment. These subcommittees are involved in translating the policies of Group-level committees into concrete initiatives appropriate to segment business activities. In addition, the Group ES Committee maintains four other subcommittees charged with implementing activities across the Group based on their specific areas of responsibility.

## ● Responsible Care Management System

Aiming for continuous improvement in areas related to the environment, occupational safety and health, product safety, and process safety, the UBE Group pursues responsible care (RC)\* initiatives in all its business areas.

With the aim of achieving constant improvement, RC is undertaken according to the Plan-Do-Check-Action (PDCA) cycle. To steadily promote RC initiatives, the UBE Group systematically implements the PDCA cycle each year.

## Organization of Environment and Safety Committee



## Glossary

\* RC (responsible care): Under RC, corporations that manufacture and/or handle chemical substances work voluntarily to preserve "safety, health and the environment" throughout product life cycles, from the development of chemicals through their manufacture, distribution, use and final consumption to disposal and/or recycling. These commitments must be clearly reflected in the corporations' management policies. Activities are carried out in the areas of environmental protection (protect people's health and the natural environment worldwide); disaster prevention (work to prevent disasters at facilities and counter natural disasters); occupational safety and health (ensure the safety and health of workers); chemical and product safety (clarify chemical products' properties and handling methods and thereby protect the safety and health of all handlers, including customers, while preserving the environment); logistics safety (strive to prevent logistics-related accidents and disasters); and communication (announce activity details and results and promote social dialogue).

## ● Outline of Environment and Safety Activities

In order to advance its medium-term environment and safety policy, each fiscal year the UBE Group strives to improve its environment and safety activities by formulating action plans in line with its Responsible Care Code and through the use of the PDCA cycle.

Fiscal 2014 evaluation: Plans were achieved or mostly achieved in all categories.

### The UBE Group's Medium-Term Environmental & Safety Policy (Fiscal 2013–2015)

Continually improving the quality of RC.

Responsible Care Code		FY2014 Action Plans
Process Safety and Disaster Prevention	Reinforcing process safety frameworks	<ol style="list-style-type: none"> <li>1. Build a framework to collect and use information about accidents and problems</li> <li>2. Implement risk assessments for emergencies and exceptional circumstances</li> <li>3. Survey process safety technologies and create a policy for their use</li> </ol>
	Earthquake and tsunami readiness	<ol style="list-style-type: none"> <li>1. Steadily implement Earthquake and Tsunami Countermeasure Plans</li> </ol>
Occupational Safety and Health	Health management	<ol style="list-style-type: none"> <li>1. Curb days lost to non-occupational injuries and illnesses</li> <li>2. Respond to regular health check results</li> </ol>
	Occupational safety	<ol style="list-style-type: none"> <li>1. Promote small groups for safety*2 initiative</li> <li>2. Increase safety level at offices and facilities</li> <li>3. Enhance basic safety training</li> </ol>
Environmental Preservation	Global warming countermeasures	<ol style="list-style-type: none"> <li>1. Promote measures to prevent global warming  <b>Greenhouse gas reduction (fiscal 2015 targets)</b> <ol style="list-style-type: none"> <li>1-1. [Energy-oriented] CO<sub>2</sub> emissions: Down 15% compared with the fiscal 1990 level</li> <li>1-2. [Energy-oriented + Non-energy-oriented (excluding waste-oriented)] CO<sub>2</sub> emissions: Down 20% compared with the fiscal 1990 level</li> </ol> <b>Greenhouse gas reduction (initiatives to be taken by fiscal 2015)</b> <ol style="list-style-type: none"> <li>1-3. Reduce CO<sub>2</sub> emissions by reducing energy use (130,000 ton reduction)</li> <li>1-4. Investigate risks and opportunities presented by climate change</li> </ol> </li> <li>2. Implement initiatives to conserve biodiversity</li> </ol>
	Reduce emissions of environmentally hazardous substances	<ol style="list-style-type: none"> <li>1. Reduce chemical substance emissions</li> <li>2. Promote recycling of industrial waste and reduce its external final disposal</li> <li>3. Promote green purchasing*3</li> </ol>
Chemicals and Product Safety (Transportation Safety)	Chemical and product safety	<ol style="list-style-type: none"> <li>1. Response to chemical regulations <ol style="list-style-type: none"> <li>1-1. Improve chemical management systems and respond appropriately to laws and regulations in and outside Japan</li> <li>1-2. Promote correct use of SDS*4 and labeling</li> </ol> </li> <li>2. Implement thorough quality loss costs management led by offices and facilities</li> <li>3. Implement chemical substance risk management                      Use GHS*5 workplace labels correctly, promote awareness of hazards and dangers and take measures to prevent chemical exposure</li> </ol>
	Transportation safety	<ol style="list-style-type: none"> <li>1. Transportation safety <ol style="list-style-type: none"> <li>1-1. Maintain correct use of Yellow Card/Container Yellow Card and Transportation Label</li> <li>1-2. Implement response to domestic and overseas restrictions on hazardous cargo transport</li> <li>1-3. Support the implementation of logistics companies' safety action plans</li> </ol> </li> </ol>
Dialogue with Communities		<ol style="list-style-type: none"> <li>1. Promote dialogue with communities</li> <li>2. Improve information disclosure and transparency</li> </ol>
Management Systems		<ol style="list-style-type: none"> <li>1. Implement environment and safety audits and inspections and quality and product safety audits</li> </ol>

## Glossary

- \*1. Irregular HAZOP: Short for irregular hazard and operability study. A method for identifying hidden process risks in operations at times of irregular operation, such as plant startup or shutdown.
- \*2. Small groups for safety: Teams of employees (of the UBE Group or partner companies) with limited numbers of participants to maximize the effectiveness of supervision by team leaders. Each small group for safety has its own safety goals to encourage employees to take initiative in safety promotion.
- \*3. Green purchasing: To purchase products and services that have minimal environmental impact from suppliers who are committed to reducing their environmental impact, considering not only the quality and price of the products, but also the environment.
- \*4. SDS: Safety Data Sheet, documentation containing the product name, physicochemical properties, hazard and toxicity information, usage, and related laws and regulations.
- \*5. GHS: Globally Harmonized System of Classification and Labeling of Chemicals, a universally standardized hazardous chemical classification system used in preparing SDS and container labels.

★★★: Achieved   ★★: Mostly achieved   ★: Not achieved

FY2014 Results		Self Evaluation	See Page(s)
1. Shared and utilized information gathered by the Process Safety Management Liaison Group and Accident Information Liaison Group 2. Began consideration of irregular HAZOP*1 as a method for assessing risks related to irregular operations and emergencies 3. Began surveys of such process safety technologies as non-destructive testing	★★	P39	
1. Created and implemented Earthquake and Tsunami Countermeasure Plans at each department and location in light of government guidelines and revisions to earthquake resistance standards	★★		
1. Implemented mental health initiatives 2. Used results from health examinations to implement health risk diagnoses and responses, lifestyle-related disease countermeasures, overwork countermeasures and dietary environment improvement initiatives	★★	P29	
1. Evaluated small groups for safety initiatives at facilities. Recognized outstanding groups to promote such initiatives 2. Evaluated facility safety using environment and safety audits. Since fiscal 2013, based on audit results, outstanding initiatives are published in a collection of best practices, and particularly important safety initiatives are published as Safety and Health Guidelines for use as Groupwide standards. In fiscal 2014, the Group reviewed and added to the collection of best practices and Safety and Health Guidelines 3. Expanded hands-on safety and health education, expanded on-the-job training (OJT) led by foremen and promoted development of under-skilled employees	★★	P40	
1. Promote measures to prevent global warming <b>Greenhouse gas reduction (fiscal 2015 targets)</b> 1-1. Reduced 20% compared with the fiscal 1990 level 1-2. Reduced 23% compared with the fiscal 1990 level <b>Greenhouse gas reduction (initiatives to be taken from fiscal 2013 to 2015)</b> 1-3. Reduced CO <sub>2</sub> emissions by 90,000 tons in fiscal 2014 (reflecting the implementation of planned measures) 1-4. Each division identified risks and opportunities presented by specific causes of climate change 2. Shared information through biodiversity preservation study meetings, participated in woodland conservation activities and educated employees	★★	P43-45	
1. Emissions of 20 voluntarily selected chemical substances: Reduced 28% compared with fiscal 2010 2. External final disposal: Reduced 66% compared with fiscal 2000 3. The UBE Group's green purchasing rate: 69%	★★	P47, 48 P50 P24	
1. Response to Chemical Regulations 1-1. Promoted response to laws and regulations through education, consultations about individual laws, and expert audits under the domestic system Improved management system in the EU. Currently building a management system in South Korea and Taiwan. Currently promoting chemical management in coordination with Group locations in China, the United States and elsewhere. 1-2. Continued using SDSs/labels based on each country's laws and regulations 2. Implementing quality loss costs management led by offices and facilities. Achieved a 23% reduction compared with fiscal 2006 levels. 3. Confirmed implementation status of GHS workplace labels at 16 offices and facilities. Implemented safety education using such tools as SDS at each workplace.	★★	P46	
1. Transportation safety 1-1 Maintained/revisted Yellow Cards/Container Yellow Cards and Transportation Labels as needed 1-2 Currently responding to restrictions on dumping of waste from ships at sea under the revised MARPOL convention 1-3. Continuing support for logistics companies through education and information sharing	★★		
1. Promote dialogue with communities 1-1. Held 12th RC Regional Dialogue Conference in the Ube District 1-2. Held 10th RC Regional Dialogue Meeting in the Chiba district 1-3. Published local newsletter <i>Tsubasa</i> (released semiannually) 2. Published <i>UBE Group CSR Report 2014</i> and received third-party verification related to RC	★★★	P24, 25 P55	
1. Implement environment and safety audits and inspections and quality and product safety audits 1-1. UBE and its divisions implemented environment and safety audits at 19 facilities and Group companies 1-2. UBE implemented quality and product safety audits at 16 facilities and Group companies 1-3. Implemented environmental safety inspections at eight facilities and Group companies	★★★	P36	

# 02-2

## Process Safety and Disaster Prevention

### ● Initiatives for Industrial Safety

In light of damage to petrochemical complexes due to the Great East Japan Earthquake and numerous serious accidents at chemical plants, industrial process safety has become a major social issue. The UBE Group recognizes that it, too, harbors such risks. Based on reports from the Ministry of Economy, Trade and Industry as well as action plans and guidelines recommended by industry organizations, the Group incorporated reinforcing process safety frameworks and earthquake and tsunami readiness as key measures in its fiscal 2014 action plans (see pages 37 to 38), and is working to prevent industrial accidents.

The table below outlines UBE's response to the Japan Petrochemical Industry Association's Industrial Process Safety Action Plan.

Furthermore, in fiscal 2014, we launched a new response to measures recommended for businesses in a report from Japan's Inter-Ministerial Liaison Council for Studying Measures for Preventing Disasters in Petroleum Industrial Complexes and Other Petroleum Facilities. UBE is also using the Japan Chemical Industry Association's Process Safety and Accident Prevention Guidelines (formulated in fiscal 2014) at certified sites for high-pressure gas, and has begun using the association's educational DVDs about actual accidents in its Chemicals Production Division, Cement & Construction Materials Company, and Energy & Environment Division. We are considering using these guidelines in future training on process principles and safety design.

### Building a Companywide Response System for Large-Scale Plant Disasters

Because large-scale accidents are likely to cause significant harm that extends beyond the facility where they occur, rapid and precise conveyance of information and response are particularly important. To that end, the UBE Group maintains a practical manual that clarifies the role of each organization as well as topics related to the internal contact system and external response.

### Earthquake and Tsunami Readiness

In light of governmental guidance and revised earthquake resistance standards, the Group Earthquake Countermeasures Committee discussed overall policy. Divisions and offices formulated and implemented Earthquake and Tsunami Countermeasure Plans.

### Response to the Japan Petrochemical Industry Association's Industrial Process Safety Action Plan

	Initiatives That Member Companies Should Take	UBE's Initiatives	
1. Commitment of corporate management to industrial process safety	(1) Express and strongly advance basic principles and policy	UBE Group Environmental and Safety Principles and UBE Action Guidelines Roundtable meetings are held at facilities each year, facilitating direct communication between the president and employees	
	(2) Appropriate resource allocation for industrial process safety (human resources, facilities, etc.)	Formulation of budgets and manpower plans based on plans for production and for facility maintenance and repair	
2. Setting goals for industrial process safety	(1) Set numerical targets for process safety	Numerical target: Zero major facilities accidents	
	(1) Risk assessments (RA) at irregular times	Using a broad interpretation of irregular times, we are beginning risk assessments of possible incorrect operation	
3. Formulating action plans to implement industrial process safety measures	(2) Education and training (development of human resources who can understand entire processes)	Implementing Companywide initiatives to reinforce the process safety framework	Reviewing methods of training and drilling aimed at enhancing emergency response capabilities
	(3) Utilize information about accidents		Sharing information on accidents and their countermeasures through the Accident Information Liaison Group
	(4) Prevent facilities problems (facility maintenance and deterioration countermeasures)	Sharing information on facility failure and problems through the Process Safety Management Liaison Group	
	(5) Ensure earthquake resistance of high-pressure gas facilities	Companywide initiatives implemented to review earthquake and tsunami damage predictions and formulate countermeasures. Action plans formulated for each facility to evaluate compliance with high-pressure gas facility earthquake resistance standards and formulate countermeasures	
	(1) Evaluate and confirm achievements and results, and reflect them in the next year's plans	Checks and evaluations of implementation status through yearly audits. Environment and Safety Committees consider the results of the year's activities when discussing measures for the next year	
5. Initiatives to advance each company's own process safety activities	(1) Evaluate everyday process safety activities	Recognition by the president at Group safety and health rallies of individuals, small groups for safety, facilities and partner companies that achieved excellent results	
	(2) Develop a culture of safety (utilize conferences, etc.)	Implemented the Process Safety Enhancement Center's Process Safety Evaluation System and began evaluations in fiscal 2013	

### Emergency Drills

The Group regularly implements emergency drills, including such responses as reporting, issuing alerts, and extinguishing fires at its facilities. We have also secured evacuation sites and conduct evacuation drills in preparation for an earthquake or tsunami.

### Plant Safety Assessment

Plant safety assessments of new, additional or modified facilities are carried out following the methods stipulated in the plant safety assessment standards. In fiscal 2014, the UBE Group carried out 84 such safety assessments.

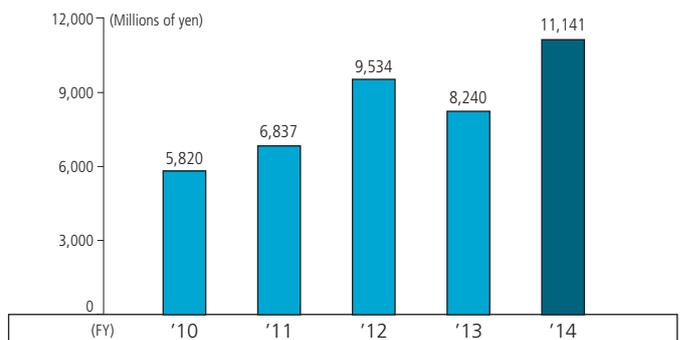
### UBE Group Facility-Related Accidents (including environmental accidents)

(Number of accidents)

FY	2010	2011	2012	2013	2014
UBE	2	3	3	2	4
Group companies	3	1	3	2	1

In fiscal 2014, the UBE Group recorded five accidents and implemented countermeasures after each incident. For example, we launched the Chemical Segment Facility-Related Accident Prevention Committee to conduct multifaceted analyses of the causes of accidents and implement short- and long-term countermeasures.

### Occupational Safety, Health and Disaster Prevention Expenditure of the UBE Group



Expenditure in fiscal 2014 increased due to the replacement of such large equipment as coal boilers and acid gas removal facilities.

# 02-3 Occupational Safety and Health

## ● Measures to Prevent Occupational Accidents

### Utilizing Occupational Accident-Related Information

UBE compiles occupational accident-related information into a database that is made openly available within the Company. Examples of countermeasures are shared horizontally within offices and facilities, and are used as important data in risk assessments of facilities and operations, helping to prevent the occurrence of similar accidents.

### Enhancing Small Groups for Safety Activities

UBE began using the small groups for safety approach in fiscal 2009, and evaluates the activities of each group. At the Group safety and health rally held every year, outstanding small groups for safety teams recommended by their divisions or facilities are recognized by the president. These initiatives help to raise safety awareness.

### Safety Evaluations of Facilities

UBE evaluates the safety of its facilities through yearly environment and safety audits. From fiscal 2013, outstanding initiatives identified through these audits are compiled into a collection of best practices that, along with Safety and Health Guidelines, are used by offices and facilities as well as small groups for safety teams as references for improving their activities.

### Enhancing Safety and Disaster Prevention Training

The increasing pace of the generational shift from older to younger employees is making the passing along of skills ever more important, and we are focusing on experiential training. In fiscal 2014, we established a training system that spans the three divisions listed below and launched experiential training that simulates such situations as being caught in machinery or working in high places.

- Machinery & Metal Products Company  
Product Manufacturing Center established (2007)
- Cement & Construction Materials Company  
Safety Training Center established (2009)
- Chemicals Company  
Chemical Training Center established (2014)

These training centers are for both Group employees and employees of partner companies. We plan to utilize the centers to enhance and develop Companywide safety and disaster prevention training going forward.

### Measures against Asbestos

Employees who have handled asbestos-related products, including those who are now retired, undergo regular health examinations. The Group cooperates in the submission of industrial accident reports by individuals whose examination results warrant medical attention. The Group also appropriately treats problems at locations where a high rate of asbestos

diffusion has been found. In addition, the Group is promoting systematic measures for the disposal and replacement of asbestos materials. Insulation and gasket packing are replaced regularly with substitute materials when piping and reactors are opened.

### Confirmation via Audits and Inspections

We implement audits and inspections of each office and facility individually. Audits are performed by auditors comprising environment and safety staff from the Head Office and other offices and facilities. These auditors visit offices and facilities and confirm records and the status of workplaces.

Each audit consists of a quantitative assessment using a checklist of items related to such items as the site's policies, environmental and safety management plan and its implementation, communication with employees and partner companies, and accident and disaster countermeasures.

Inspections are conducted by members of the Group Strategic Management Committee (chaired by the president), who visit offices and facilities to confirm the results of audits and achievements of initiatives and provide feedback.

The results of these audits and the feedback from these inspections helps offices and facilities improve any weak points and increase their level of safety.

### UBE Group Safety and Health Rally

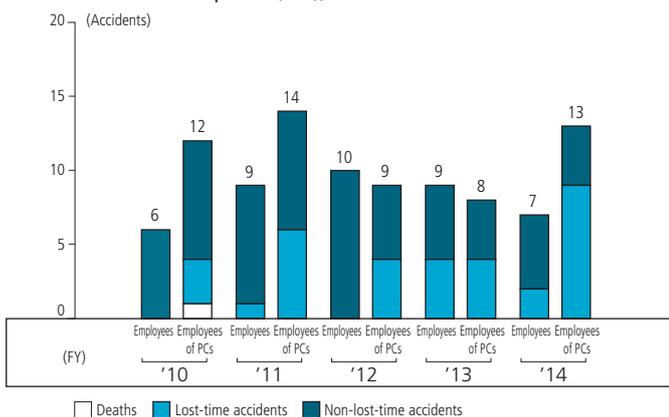
The Ube Group holds a safety and health rally every year. Over 400 UBE Group managers and employees from across Japan participate, sharing information and fostering motivation. In addition, individuals and groups that have made particularly outstanding contributions to safety and health receive recognition from the Group president. The event also features presentations from small groups for safety teams on their experiences and special lectures from outside instructors about safety and health management, helping to raise safety awareness.

At the end of the rally, all participants, including managers, join together in reciting our safety pledge, renewing their commitment to eliminating accidents and improving work environments.

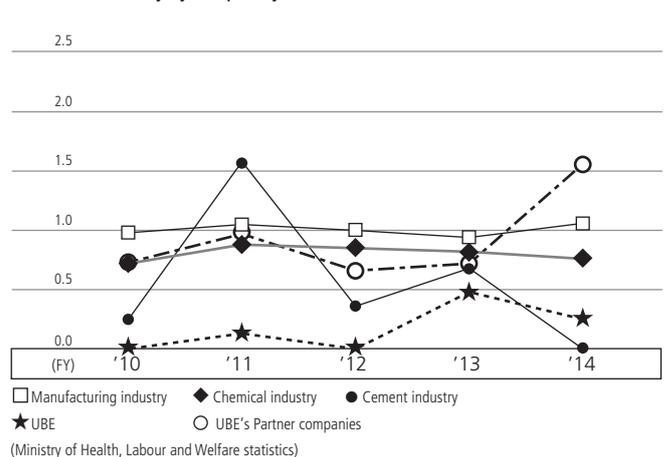


Participants in the UBE Group safety and health rally recite the safety pledge

Number of Occupational Accidents (Involving Employees of UBE and Those from Partner Companies (PCs))



UBE Lost-Time Injury Frequency Rate



# 02-4 Environmental Accounting

Since fiscal 1999, the UBE Group has employed environmental accounting as a tool for quantitatively understanding and evaluating the costs and effects of environmental preservation in Group business activities while promoting more efficient, sustained environmental preservation.

The results for fiscal 2014 are as shown in the following tables.

## Environmental Preservation Costs

Capital investment in fiscal 2014 totaled ¥2,360 million. This was primarily attributable to the installation of tank dikes as a countermeasure under the Water Pollution Control Law at the Ube Chemical Factory, as well as the replacement of a crusher to improve the waste plastic recycling processing capacity at the Isa Cement Factory.

Costs rose ¥390 million compared with those of fiscal 2013 to ¥12,800 million.

## Economic Effect

The income effect amounted to ¥1,420 million. This figure includes proceeds from the sale of marketable waste.

The savings effect was ¥3,700 million, due to the promotion of resource reuse and energy conservation.



Crusher  
(Isa Cement Factory)



Tank dike  
(Ube Chemical Factory)

## Environmental Preservation Costs

(Unit: ¥100 million)

Category	Main Activity	Capital Investment			Costs			
		FY2013	FY2014	Difference	FY2013	FY2014	Difference	
Cost by business area	Pollution prevention	Investing in and maintaining energy-saving facilities	9.4	11.5	2.1	50.3	50.3	0.0
	Investing in and maintaining air and water pollution prevention facilities	Resource recycling	9.5	3.8	(5.7)	5.8	6.4	0.6
	Global environment preservation	Recycling and reducing industrial waste	4.3	7.7	3.4	44.8	42.2	(2.6)
Upstream/downstream costs	Container/packaging recycling, green purchasing	0.0	0.0	0.0	6.5	6.3	(0.2)	
Costs of management activities	Acquiring, running and maintaining environmental management systems	0.0	0.4	0.4	5.1	6.6	1.5	
Research and development costs	R&D of environment-friendly products and technologies	0.1	0.2	0.1	7.0	10.1	3.1	
Costs of social activities	Greening and beautifying offices/facilities and their surroundings	0.2	0.0	(0.2)	2.3	3.4	1.1	
Costs of cleaning up environment damage	Payment of environment-related levy	0.0	0.0	0.0	2.3	2.7	0.4	
Total		23.5	23.6	0.1	124.1	128.0	3.9	

## Economic Effect

(Unit: ¥100 million)

Category	Effect	FY2013	FY2014	Difference
Income effect	Proceeds from sales of marketable waste products	9.1	14.2	5.1
Savings effect	Savings achieved through resource recycling and energy conservation	50.6	37.0	(13.6)

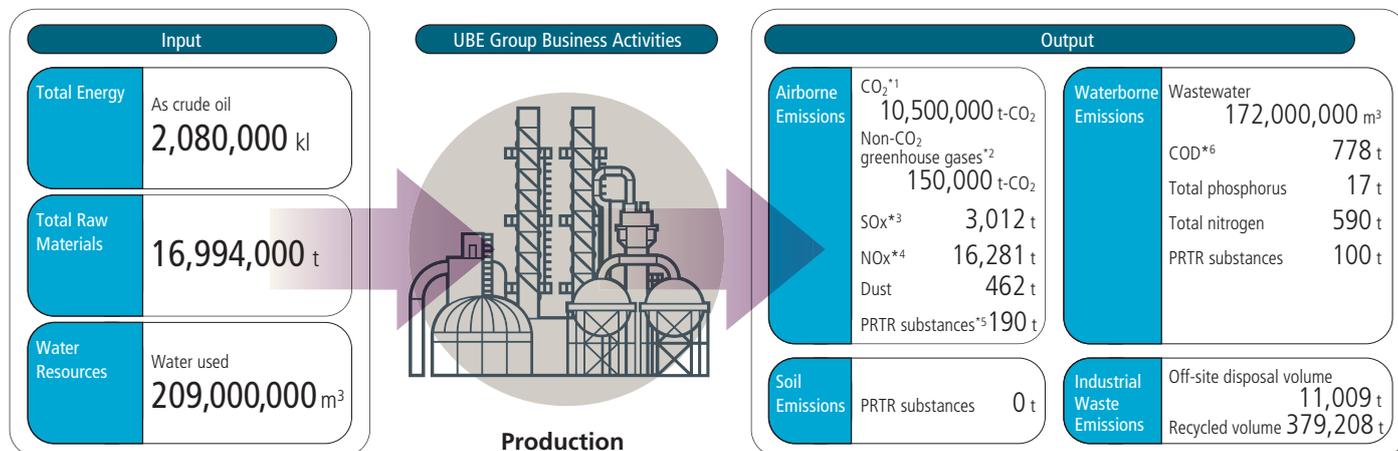
### UBE Group Environmental Accounting Method

- Companies covered: UBE Group companies (only consolidated subsidiaries described under "Companies covered" on page 57, except for Ems-Ube, Ltd. and UBE-MC Hydrogen Peroxide, Limited.)
- Calculations are based on Environmental Accounting Guidelines (Ministry of the Environment, 2005 edition).
- The economic effect is the effect obtained in fiscal 2014 as a result of environmental protection activities. This is limited to what can be calculated rationally and excludes hypothetical calculations, such as the avoidance of the cost of cleaning up environmental damage.
- Internal transactions within the UBE Group are eliminated.

# 02-5 Environmental Performance

The UBE Group recognizes that environment-oriented business practices are vital to its ongoing growth. We will continue to promote measures to prevent global warming, reduce emissions of chemical substances, and

## Overview of the UBE Group's Environmental Impact in Fiscal 2014



\*See "Companies covered" on page 57 for details on the scope of UBE Group performance data.

## Fiscal 2013 and 2014 Environmental Impact Data by Facility

(Unit: tons/year)

		Emissions into the Atmosphere						Emissions into Water						
		SOx Emissions		NOx Emissions		Dust Emissions		COD Emissions		Total Phosphorus Emissions		Total Nitrogen Emissions		
		2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	
In Japan	Chiba Petrochemical Factory	1.5	1.1	37	41	0.4	0.2	11	12	0.1	0.1	2.2	2.7	
	Sakai Factory	0.0	0.0	132	8	9.4	0.1	151	68	4.2	5.9	215	66	
	Ube Chemical Factory	1,630	1,963	3,535	3,372	117	132	477	438	6.3	6.7	462	450	
	Ube-Fujimagari Factory	551	512	390	412	3.9	3.8	232	244	4.3	4.2	60	67	
	Ube Cement Factory	37	40	1,637	1,364	60	55	7.9	8.1	—	—	—	—	
	Isa Cement Factory	319	349	7,033	7,514	168	166	0.0	0.0	—	—	—	—	
	Kanda Cement Factory	8.1	7.6	2,828	2,518	58	56	1.3	1.2	0.1	0.0	1.3	0.7	
	Technical Development Center	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	
	Okinoyama Coal Center	—	—	—	—	—	—	—	—	—	—	—	—	
	Organic Chemistry Research Laboratory	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2	0.2	
	Organic Specialty Materials Research Laboratory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Subtotal	UBE	2,548	2,872	15,592	15,228	416	413	880	772	15	17	741	587
	Overseas	Ube Film, Ltd.	—	—	—	—	—	—	0.0	0.0	—	—	—	—
		Meiwa Plastic Industries, Ltd.	—	—	—	—	—	—	0.1	0.1	0.0	0.0	0.0	0.1
Ems-Ube, Ltd.		0.0	0.0	4.8	3.2	0.0	0.0	5.8	3.6	0.0	0.0	1.7	1.3	
UBE-MC Hydrogen Peroxide, Limited.		—	—	—	—	—	—	0.2	0.2	0.0	0.0	0.0	0.0	
Ube Exsymo Co., Ltd.		1.1	0.0	1.3	0.5	0.2	0.1	0.9	0.6	—	—	—	—	
Ube Material Industries, Ltd.		93	124	1,058	972	47	36	0.5	0.6	0.0	0.0	0.9	1.0	
Ube Board Co., Ltd.		0.5	0.3	6.4	5.0	2.5	1.9	0.0	0.2	0.0	0.0	0.0	0.1	
Ube Machinery Corporation, Ltd.		0.0	0.0	—	—	—	—	1.1	1.2	0.2	0.1	1.4	1.3	
Ube Steel Co., Ltd.		14	15	51	44	14	11	0.7	0.6	—	—	—	—	
Fukushima, Ltd.	0.6	0.5	29.0	29.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0		
Subtotal	Group companies	110	140	1,150	1,053	63	49	9	7	0	0	4	3	
Total	UBE Group	2,658	3,012	16,743	16,281	479	462	889	778	15	17	745	590	
Overseas	Thailand	1	4	52	48	9	10	98	90	3	3	7	10	
	Spain	37	17	857	271	35	12	96	92	2	1	96	102	

Note: As of October 2013, UBE has taken on the factory operations of Ube Ammonia Industry, Ltd. at the Ube-Fujimagari Factory. As a result, the fiscal 2013 environmental impact data for Ube Ammonia Industry, Ltd. is calculated as part of that for the Ube-Fujimagari Factory.

## Glossary

\*1. Shows total CO<sub>2</sub> emission volumes (excluding emissions from waste)

\*2. Five gases, namely CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub>

\*3. SOx: Sulfur oxides originate in the sulfur (S) component of fuels. Boilers are UBE's main source of SOx.

\*4. NOx: Nitrogen oxides originate when a fuel is combusted in the air. Boilers and cement kilns are UBE's main sources of NOx.

\*5. The 462 substances specified under the Japanese PRTR Law, on an aggregate basis (see page 47).

\*6. COD (Chemical Oxygen Demand): This is an indicator of water pollution by organic substances and represents the amount of oxygen consumed in the chemical oxidation of organic matter.

# 02-6 Measures to Prevent Global Warming

## Medium-Term Management Plan Change & Challenge—Driving Growth Reducing Greenhouse Gases

### CO<sub>2</sub> Reduction Targets for the Domestic UBE Group

1. CO<sub>2</sub> emissions from energy use: Reduce 15% compared with fiscal 1990 levels by fiscal 2015
  2. Total CO<sub>2</sub> emissions from energy use and non-energy-use (excluding emissions from waste): Reduce 20% compared with fiscal 1990 levels by fiscal 2015
- Steadily implement measures to reduce energy use, expand reuse of waste materials and work toward further CO<sub>2</sub> reductions in factories at the product manufacturing stage.
  - Reduce CO<sub>2</sub> generated by use of finished products that employ the UBE Group's main products and continue to monitor the amount of CO<sub>2</sub> emissions at all stages of the Group's supply chains.
  - Consider CO<sub>2</sub> reduction targets for all UBE facilities, including those outside Japan, and enhance Groupwide efforts to reduce emissions of greenhouse gases.

### ● Measures to Reduce Greenhouse Gases

#### CO<sub>2</sub> Emissions and CO<sub>2</sub> Emission Intensity Index

The Group's CO<sub>2</sub> emissions in fiscal 2014 decreased 2% compared with fiscal 2013, due in part to the end of lactam production at the Sakai Factory. The CO<sub>2</sub> emission intensity index improved 5% compared with fiscal 2013.

#### Energy Consumption and Energy Consumption Intensity Index

The Group's energy consumption in fiscal 2014 increased 2% compared with fiscal 2013. The energy consumption intensity index was on par with fiscal 2013.

#### Efforts in Logistics

Under its Logistics Re-Engineering Project, the UBE Group continues to improve load ratios by using larger lots and co-loading in coordination with customers, as well as by optimizing vehicle selection. During fiscal 2014, we also focused on expanding transport by rail and container ship. We are also working to adopt larger vehicles for transport within Group facilities.

As a result, energy consumption intensity in fiscal 2014 was 95.6% that of fiscal 2013 and 97.9% of the average over the past five years, achieving both the goals of improvement over the previous year and a 1% improvement over the average for the past five years.

#### Efforts in Factories

The UBE Group is working to reduce energy consumption through far-reaching energy-saving measures being undertaken at all factories. In fiscal 2014, through the expanded use of waste materials at cement factories, a reduction in the use of steam and other initiatives, we reduced our CO<sub>2</sub> emissions by approximately 50,000 tons.

Since 2011, a division of the UBE head office conducts audits of energy management at UBE factories. In fiscal 2014, we audited the Okinoyama

Coal Center and the Kanda Cement Factory, confirming that energy saving measures were being implemented under an energy management framework.

Furthermore, exhaust heat power generation facilities are being installed at the Kanda Cement Factory and expected to go online in fiscal 2015. These facilities will make effective use of as-yet-unutilized waste heat from calcination processes, reducing CO<sub>2</sub> emissions approximately 50,000 tons annually.

#### Staff Message



**Toshiaki Nakamura**

Manager, Engineering Group, Electric Power Business Unit, Energy & Environment Division

#### CO<sub>2</sub> Emission Reducing Initiatives at Power Stations

In the Electric Power Business Unit, we provide in-house generation to supply The Company with stable, low-cost utilities (namely electricity and steam) and supply the Chugoku Electric Power Company with electricity as an IPP.\*<sup>1</sup> The main fuel we use at power stations is coal, so reducing CO<sub>2</sub> emissions is an important task. In order to realize this, we are working to reduce the amount of coal we use by 1) adopting renewable energy sources, and 2) saving energy. In terms of the former, since 2006 we have been using an annual 80,000 tons of wood biomass (equivalent to 100,000 tons of CO<sub>2</sub>), specifically waste wood chips, in place of coal at our IPP facility. For the latter, we work on a daily basis to ensure the highly efficient operation of multiple steam supply sources to meet the Company's factories' ever-shifting demand for steam. Furthermore, since 2007, we have been implementing energy-saving initiatives involving all employees. Under these initiatives, all power station employees work together to quickly discover and fix sources of loss, such as steam leaks or heat retention issues, and thus prevent declines in efficiency and the waste of coal. At some of our power stations, certain key parts, such as steam turbines, are aging and will soon need to be replaced. We will use this opportunity to replace them with high-efficiency equipment to save even more energy, and we are considering expanding the use of wood biomass, which currently fuels our IPP facility, at our in-house generation facilities as well. Through such measures, we hope to contribute to the continued reduction of UBE's CO<sub>2</sub> emissions.

#### Considering Responses to Climate Change

Average global temperatures have been rising since the industrial revolution, particularly in recent years. Reports from the IPCC\*<sup>2</sup> detail this rise as well as its main impacts, such as abnormal weather. Measures to address the impact of climate change fall into two categories: mitigation, aimed at reducing greenhouse gases and slowing the progress of global warming, and adaptation, aimed at reducing the severity of the impact of changes that are unavoidable even with mitigation measures in place.

The UBE Group's main mitigation measures consist of efforts to reduce energy use and thus cut CO<sub>2</sub> emissions. As a result of such measures, the

#### Glossary

\*1. IPP: Independent Power Producer

\*2. IPCC: The Intergovernmental Panel on Climate Change, an intergovernmental body established under the United Nations in 1988. The IPCC gathers and evaluates the latest insights into global warming and compiles its findings into reports, which it disseminates broadly, including to governmental decision makers.

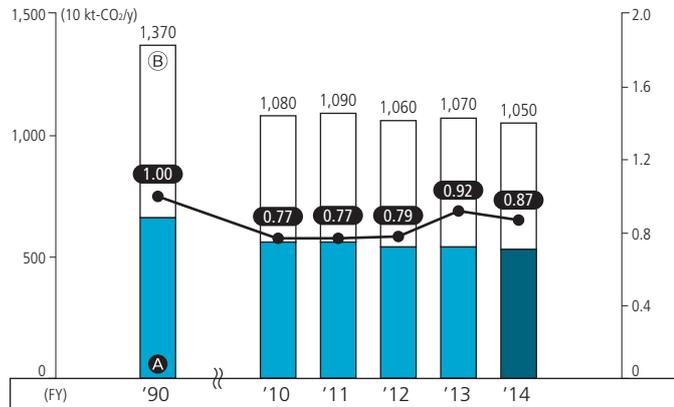
\*3. GHG (Greenhouse Gas): Refers here to CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub>, six greenhouse gases specified in the Kyoto Protocol

\*4. Scope 1: Direct emissions from a reporting entity, due to fuel use, etc.

\*5. Scope 2: Indirect emissions from electricity and heat purchased from other entities

\*6. Scope 3: Indirect emissions of CO<sub>2</sub> throughout the supply chain, such as those that occur during material procurement, transport and product processing, use and disposal

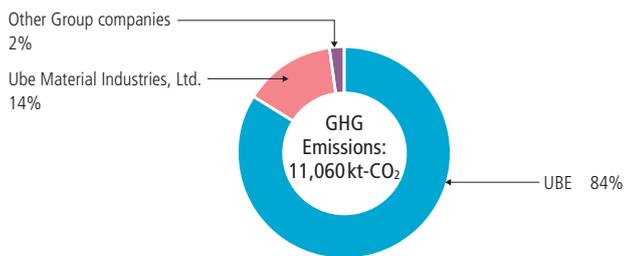
### CO<sub>2</sub> Emissions and CO<sub>2</sub> Emission Intensity Index



- (A) Energy-based CO<sub>2</sub> emissions
- (B) Non-energy-based CO<sub>2</sub> emissions (excluding emissions from waste)
- (C) CO<sub>2</sub> emission intensity index (fiscal 1990 basis)

The volume of CO<sub>2</sub> emissions is calculated based on the Act on Promotion Measures to Cope with Global Warming.

### GHG<sup>3</sup> Emissions for UBE Group by Company (Fiscal 2014 Results)



Group's CO<sub>2</sub> emissions have steadily declined since 1990. Going forward, we will continue to implement economical measures to save energy. In terms of adaptation, to clarify the impacts of climate change, we have begun studying risks and opportunities regarding factory operations as well as raw material procurement, logistics and the entire supply chain.

The UBE Group provides products that can help to reduce negative impacts on water resources and agriculture as well as environment-friendly products that reduce CO<sub>2</sub> emissions at the usage stage of finished products. Going forward, we will continue to promote the use of such products in and outside Japan, striving to reduce the impact of climate change on the global environment wherever we can.

### Understanding CO<sub>2</sub> Emissions throughout the Supply Chain

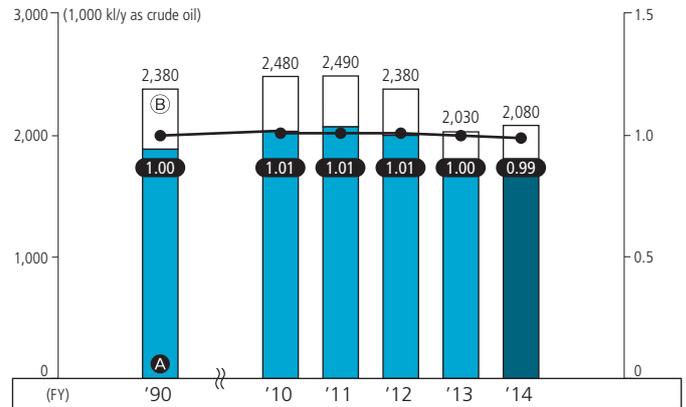
To understand and work to reduce CO<sub>2</sub> emissions throughout the supply chain, the UBE Group measures scope 3 emissions.\*6

Total scope 3 CO<sub>2</sub> emissions in fiscal 2014 were calculated at 16 million tons. A particularly large portion of these emissions, around 70%, was due to the use of products sold by UBE, including coal, die-casting machines and injection molding machines. To reduce these emissions, the UBE Group is advancing initiatives to utilize biomass and to enhance the energy-saving functions of die-casting machines and other products.

### GHG Emissions by Scope



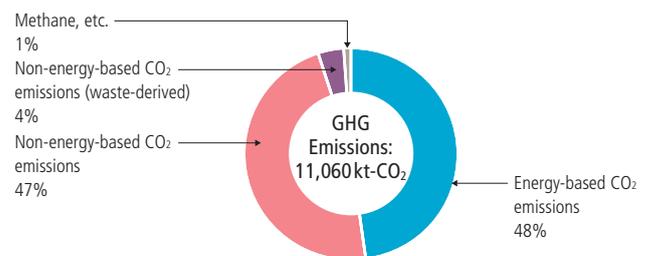
### Energy Consumption and Energy Consumption Intensity Index



- (A) UBE
- (B) Group companies
- (C) Energy intensity index (fiscal 1990 basis)

The volume of energy consumption is calculated based on the Act on the Rational Use of Energy.

### GHG<sup>4</sup> Emissions for UBE Group by Type of Gas (Fiscal 2014 Results)



### Scope 3 Emissions (Domestic UBE Group)

Category	GHG Emissions (10kt-CO <sub>2</sub> )	Note
1 Purchased goods and services	81	
2 Capital goods	12	
3 Fuel- and energy-related activities not included in Scope 1 or Scope 2	40	
4 Upstream transportation and distribution	90	
5 Waste generated in operations	2	
6 Business travel	1	
7 Employee commuting	0	
8 Upstream leased assets	—	Included in Scope 1 and Scope 2
9 Downstream transportation and distribution	51	
10 Processing of sold products	5	
11 Use of sold products	1,175	Sold coal, machinery, etc.
12 End-of-life treatment of sold products	172	
13 Downstream leased assets	—	Not applicable
14 Franchises	—	Not applicable
15 Investments	4	
Total	1,633	

# 02-7 Preserving Biodiversity

## ● Partnership to Promote the Declaration of Biodiversity by Keidanren (Japan Business Federation)

UBE is participating as a partner to promote the Declaration of Biodiversity by Keidanren with the aim of establishing more proactive measures to preserve biodiversity.

## ● Environmental Study Meetings on Preserving Biodiversity to Promote Activities

The UBE Group has established Environmental Study Meetings as a horizontal Companywide organization. Through these meetings, we are working to understand and evaluate the impact of UBE's business activities on biodiversity, gather and share information, and discuss the development of environment-friendly products and technologies and businesses. In fiscal 2014, UBE Group Employees contributed approximately 1,100 man-hours to initiatives to preserve biodiversity, and the Group spent some ¥7 million on efforts that included forest maintenance and tree planting at former limestone quarries.

## ● Forest Conservation Initiatives

In fiscal 2014, the UBE Group participated in the Seventh Forest Creation Experiential Activity for Water Conservation, sponsored by the Mine City Office of Yamaguchi Prefecture's Agriculture, Forestry & Fisheries Department, with 99 employees taking part in the thinning and logging of bamboo over about two hectares. Furthermore, UBE employees participated in activities to protect and nurture the Akiyoshidai plateau in Mine (hosted annually by the Akago Area Community-Building Council). In addition, some of the management of forest and water sources undertaken by Yamaguchi Prefecture is supported by fees paid by UBE for the water it uses in its factories.

Furthermore, we have been undertaking mine greening activities since 2008 at the Kanda Mine. In fiscal 2014, we planted citrus trees, vines, and other plants at retired limestone quarries and on the slopes the Kanda Mine's Taihei and Amakubo quarry dumping sites.



Seventh Forest Creation Experiential Activity for Water Conservation (November 2014)



### Staff Message

#### Hiroaki Kadono

Assistant Manager, Electricity Generation, Production Section, Isa Cement Factory, Production and Technology Headquarters, Cement & Construction Materials Company

### The Circle of Biodiversity Conservation

The private power station at the Isa Cement Factory has been using wood chips for a portion of its fuel for the past 10 years. Regarding contribution to biodiversity conservation, all of us at the power station are working together to try to use as much of this renewable biomass resource as possible.

The Isa Cement Factory also participates in forest maintenance activities held by Yamaguchi Prefecture every year. We believe that sustaining the ecosystems of the local forests and mountains is another way of contributing to biodiversity conservation. Trimming and cutting trees can be surprisingly difficult, and even cutting down a scrawny little shrub is often exhausting. Still, getting away from the factory facilities that surround us every day, out into nature, among the trees, and focusing on work helps us relax, both mentally and emotionally. While I enjoy the break from ordinary work, I am always hoping that the circle of participants in these activities, which are meaningful for people, the Company and the Earth, will grow.

I think that there are many other things around me related to the conservation of local ecosystems that I have yet to really notice. From now on, I'd like to increase my awareness of biodiversity conservation, in both my professional and private life.



Trees planted at the Kanda Mine



A controlled burn on the Akiyoshidai plateau (February 2015)

# 02-8 Product Safety and Quality Assurance

## ● Product Safety and Quality Assurance Initiatives

### Safety Data Sheet (SDS)\*1

To ensure the safe use of our chemical products, we actively provide SDSs for all of our products to our customers and disclose SDSs for our main products on our website. In addition, employees can access our SDS database via the Company intranet. This database provides employees with information about products, raw materials and intermediates that includes data on hazards and toxicity, relevant laws and regulations, and use, storage, transport and disposal procedures.

We update SDSs and product labels in light of country-specific laws (including those of the United States, South Korea and China), the EU's REACH Regulation, CLP\*2 and other relevant regulations as necessary.

<b>UBE</b> Nom du Produit: UBEPOL BR & MBR Séries Page 1 sur 6 Premier numéro: 14 Fév. 2013 Révision 03 Mar. 2015 Version numéro: 2	
<b>FICHE SIGNALÉTIQUE DE SÉCURITÉ</b> Règlement 453/2010 du 20 Mai 2010	
<b>Section 1: Identification de la substance/du mélange et société/entreprise</b>	
1.1 Identificateur du produit	NOM DU PRODUIT: UBEPOL BR100, BR130B, BR130H, BR14H, BR150, BR15H, BR150B, BR150H, BR150L, BR15HL, BR22H, BR230, BR23H, BR30L, BR710, MBR500
1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées	Nom chimique: Polybutadiène Pneu, HIPS, Semelles de chaussures, etc.
1.3 Détails sur le fournisseur de la fiche signalétique de sécurité	Nom de l'entreprise: UBE Europe GmbH Adresse: Immermann Hof, Immermannstrasse 65B, D-40210 Düsseldorf, Germany TEL: +49-211-178930 FAX: +49-211-3613297 E-mail: UBE.Europe@ube.de Fabricant: UBE INDUSTRIES, LTD., Synthetic Rubber Business Unit, Seavans North Bldg, 1-2-1, Shibaura Minato-Ku, Tokyo 105-8449, Japan; Tel +81-3-5419-6167; Fax +81-3-5419-6250.
1.4 Numéro de téléphone d'urgence	Carechem 24: +44 (0) 1235 239670 (24-hours Every day) Languages provided English, Albanian, Bulgarian, Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Portuguese, Romanian, Russian, Serb-Croat, Slovak, Spanish, Swedish, Turkish, Ukrainian

SDS

### Product Labels

A GHS label listing cautionary measures to be taken during handling is attached to every product container. Moreover, we have fully adopted the Container Yellow Card labeling system.

### Transportation Safety

Based on the annual plans of the Group Product Safety Committee, we undertake measures to prevent transportation accidents and improve the quality of transportation operations. Such measures include maintaining Yellow Card\*3 and transportation labeling systems as well as conducting disaster drills.

### Response to Customers' Green Procurement\*4

Particularly in the electric and electronic device and automotive industries, we are seeing advances in products designed for easier recycling and the reduced use of harmful materials. As a provider of raw materials, UBE responds enthusiastically to its customers' green procurement efforts. With regard to its own raw materials procurement, the Company has set internal standards and monitors procured parts, materials and products for harmful materials.

## Glossary

- \*1. SDS: Safety Data Sheet, documentation containing the product name, physicochemical properties, hazard and toxicity information, usage, and related laws and regulations
- \*2. CLP Regulation: A new EU regulation in addition to REACH pertaining to classification, labeling and packaging that facilitates the introduction of GHS within the EU. (CLP stands for Classification, Labelling and Packaging)
- \*3. Yellow card: A card for use in case of an accident during transport that displays product information, including product name, relevant laws, attributes, handling procedures, accident response procedures and emergency contact information
- \*4. Green procurement: Procurement of materials conducted by companies based on their individual safety and environmental criteria established to meet the requirements of relevant legal regulations, including the EU RoHS Directive that restricts the use of certain hazardous substances in electrical and electronic equipment
- \*5. High Production Volume Chemicals Program (HPV): An international chemical safety management initiative that gathers safety information about, conducts toxicity assessments of, and shares information regarding mass-produced chemical substances. Begun by the OECD, it is now carried out by the ICCA.
- \*6. Japan Challenge Program: A domestic chemical safety inspection program. The Japanese version of the High Production Volume Chemicals (HPV) Program that gathers and communicates information on the hazards and toxicity of chemical substances in Japan and internationally in coordination with industry and the national government
- \*7. Japan Initiative of Product Stewardship (JIPS): Voluntary risk management of chemical substances promoted by the JCIA
- \*8. Global Product Strategy (GPS): An initiative for voluntary chemical substance risk management promoted by the ICCA with the goal of minimizing the impact of chemical substances on the environment and people by 2020
- \*9. Safety Summary Sheet: A document summarizing the results of in-house chemical substance risk assessments that reflects the results of GPS initiatives, published on the ICCA's GPS website

## Staff Message



### Shigeo Kurata

Quality Assurance No.1 Group  
Ube Chemical Factory  
Chemical Production Division

### Creating a Culture of Self-Initiated Compliance Based on Shared Understanding

I am in charge of quality assurance for some of the products made at the Ube Chemical Factory, namely nylon resins, lactam, industrial resins, fine chemicals and silicon nitride.

As part of my duties, I promote response to laws concerning chemical products from a product safety perspective. This entails cooperating with the Environment & Safety Department to answer customer inquiries and ensure that our response to relevant laws and regulations is adequate and correct.

With regard to nylon, every year we hold a QA/QC/PS (quality assurance, quality control and product safety) Global Meeting to share information with overseas Group companies and discuss measures to promote quality assurance, including product safety.

In recent years, regulatory requirements, such as REACH and CLP, have grown more demanding. To deal with these changes, I will continue to actively advance product safety activities aimed at fostering a proactive corporate culture in which all divisions comply with necessary rules as a matter of course based on a shared understanding of the law.

### Advance Safety Assessments of Chemical Substances

We conduct advance safety assessments of newly developed chemical substances and chemical substances that we will be handling in factories for the first time. In fiscal 2014, the UBE Group performed 47 advance safety assessments of chemical substances.

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

UBE actively gathers and communicates hazard information about its chemical products, taking part in the International Council of Chemical Associations (ICCA) HPV Program\*5 and the Japan Challenge Program.\*6 Since fiscal 2011, we have been participating in the JCIA's Japan Initiative of Product Stewardship (JIPS, the domestic version of the ICCA's GPS),\*7,\*8 while promoting the gathering and communication of hazard information and risk assessments. The results of this participation include Summary Sheets\*9 for eight substances published on the GPS web portal.

Through the JCIA, we also actively support the ICCA in its voluntary Long-Range Research Initiative, which focuses on the effects of chemical substances on human health and the environment.

# 02-9 Management of Chemical Substances

## ● Response to PRTR\*1 and VOCs\*2

Due to a revision of the Japanese PRTR Law, in fiscal 2010 the number of substances subject to reporting rose from 354 to 462, and the number of substances on which the UBE Group reports has risen accordingly from 50 to 63. Nevertheless, the Group's total emissions of such substances in fiscal 2014 were down 40% compared with fiscal 2010.

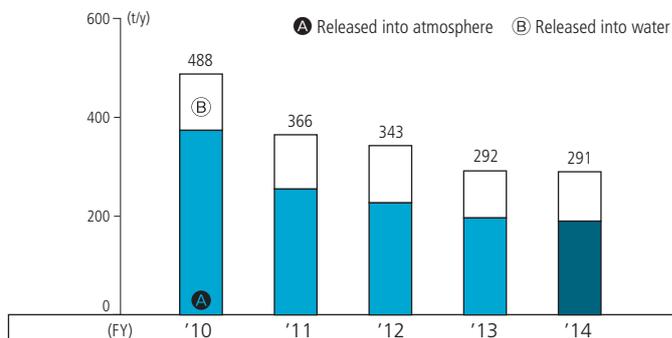
With regard to volatile organic compounds (VOCs), UBE has continued efforts to reduce emissions even after attaining its goals for fiscal 2010. As a result, fiscal 2014 emissions were down 29% compared with those of fiscal 2010.

In addition, UBE has voluntarily selected 20 substances\*3 that it emits relatively large amounts of from the list of substances subject to the Japanese PRTR law and VOCs and reduced its emissions of said substances 28% compared with fiscal 2010.

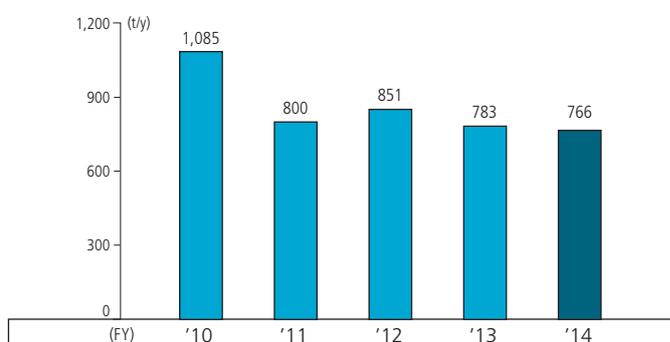
## ● Polychlorinated Biphenyl (PCB) Management

The UBE Group appropriately stores and manages PCB-containing transformers, condensers and fluorescent lighting stabilizers in its factories in accordance with the Law Concerning Special Measures against PCB Waste. In December 2012, the enforcement order for the Law Concerning Special Measures against PCB Waste was partially amended, extending the disposal deadline to March 31, 2027. In accordance with this law, the Group is advancing treatment of PCB-containing items in coordination with the Japan Environmental Storage & Safety Corporation.

Emissions Volume of PRTR Substances



VOC Emissions



Total Volume of PRTR Substances Emitted/Transferred in Fiscal 2014

	Handling Volume	Emissions Volume				Increase/Decrease Rate Compared with Fiscal 2013 (Total Emissions)	Transfer Volume	Number of PRTR Substances
		Atmosphere	Public Water	Soil	Total			
UBE	252,086	100.9	91.7	0.0	192.7	0.2%	1,592.7	51 substances
Other Group companies	30,018	89.5	8.6	0.0	98.1	(1.5%)	763.5	27 substances
Total (UBE Group)	282,104	190.4	100.3	0.0	290.7	(0.3%)	2,356.2	63 substances

Emissions of Individual PRTR Substances in Fiscal 2014\*4

Ordinance Designation No.	Chemical Substance	CAS No.	Handling Volume	Total Emissions Volume				Increase/Decrease Rate Compared with Fiscal 2013 (Total Emissions)	Transfer Volume
				Atmosphere	Public Water	Soil	Total		
300	Toluene	108-88-3	728	82.4	12.2	0.0	94.6	6.3%	285.2
76	ε-Caprolactam	105-60-2	135,136	0.0	79.2	0.0	79.2	4.1%	352.0
80	Xylene	—	165	28.4	0.0	0.0	28.4	7.9%	7.5
134	Vinyl acetate	108-05-4	6,781	27.1	0.0	0.0	27.1	(3.4%)	0.0
392	n-Hexane	110-54-3	293	13.7	0.0	0.0	13.7	10.9%	46.8
53	Ethylbenzene	100-41-4	29	11.5	0.0	0.0	11.5	(10.8%)	0.2
400	Benzene	71-43-2	420	7.7	0.1	0.0	7.9	(52.4%)	357.6
213	N,N-dimethylacetamide	127-19-5	501	5.7	0.0	0.0	5.7	52.7%	206.4
351	1,3-butadiene	106-99-0	112,676	4.0	0.0	0.0	4.0	37.1%	0.2
405	Boron compounds	—	77	0.1	3.4	0.0	3.5	13.7%	0.9
243	Dioxins	*	—	285.8	2.0	0.0	287.8	131.1%	2.3

CAS No.: Chemical Abstract Service registry number  
Unit for dioxins: mg-TEQ/year

\* Contains various compounds

### Glossary

\*1. PRTR (Pollutant Release and Transfer Register): A registration system for emissions and transfers of chemical substances. Involves conducting voluntary surveys to assess the volume of chemical substances that are emitted into the environment (atmosphere, water, soil) and transferred outside in the form of waste from company facilities during business activities and reporting survey findings to national and other governments while undertaking full public disclosure. The aim of PRTR is to take steps to control and reduce environmental burden through the appropriate use and management of chemical substances.

\*2. Volatile Organic Compounds: Organic chemicals that evaporate or sublime easily, entering the atmosphere as gases. Includes a wide variety of substances, such as toluene and xylene

\*3. UBE's 20 voluntarily selected chemical substances: methyl alcohol, butyl alcohol, toluene, ε-caprolactam, cyclohexane, ammonia, vinyl acetate, xylene, N,N-dimethylacetamide, 2-hexanone, ethylbenzene, n-hexane, benzene, water-soluble zinc compounds, 1,3-butadiene, cis-2-butene, boron compounds, cyclohexanone, hexadecyltrimethylammonium chloride and dichloromethane

\*4. Of the 63 substances subject to the Japanese PRTR Law, these are the top ten by volume emitted by UBE along with dioxins.

# 02-10

## Measures to Prevent Air and Water Pollution

### Measures to Prevent Air and Water Pollution

#### Measures to Prevent Air Pollution

The UBE Group monitors pollutants at the source, and pollution control is undertaken in compliance with levels established in agreement with governments and its own voluntary pollution prevention management standards. All of these measures are reflected in our factory operations.

#### Measures to Prevent Odors

The UBE Group is working together with governments on odor countermeasures, installing odor reducing equipment and building proprietary odor monitoring systems in the UBE District.

#### Measures to Prevent Water Pollution

The UBE Group has installed systems to monitor water pollutants in emissions to bodies of water. In addition, UBE Group factories, which can have a serious impact on public water quality, purify wastewater through the use of wastewater treatment facilities.

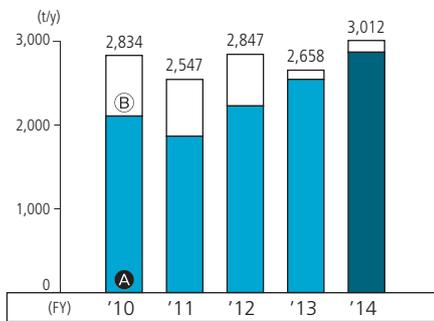
#### Measures to Prevent Soil and Groundwater Pollution

The UBE Group performs surveys and takes appropriate measures in accordance with the regulations set forth in the Soil Contamination Countermeasures Law and ordinances established by local governments.

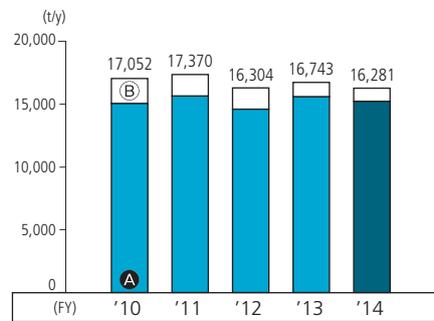
### Emissions to the Air (Note)

Ⓐ UBE Ⓑ Group companies

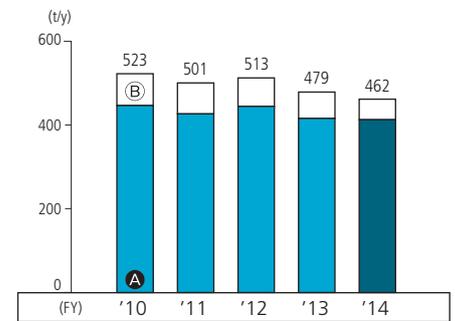
#### SOx Emissions\*1



#### NOx Emissions\*2



#### Dust Emissions

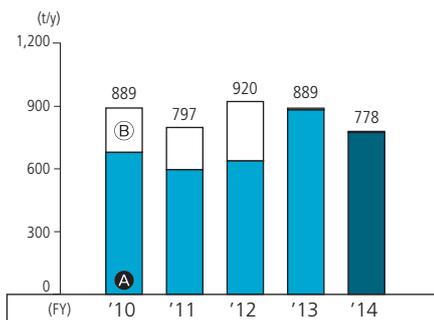


Note: As of October 2013, UBE has taken on the factory operations of Ube Ammonia Industry, Ltd. at the new Ube-Fujimagari Factory. As a result, the fiscal 2013 environmental impact data for Ube Ammonia Industry, Ltd. is calculated as part of that of the Ube-Fujimagari Factory.

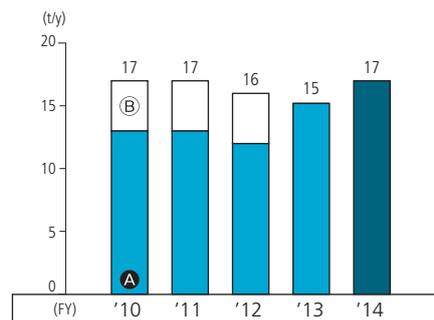
### Emissions to Bodies of Water (Note)

Ⓐ UBE Ⓑ Group companies

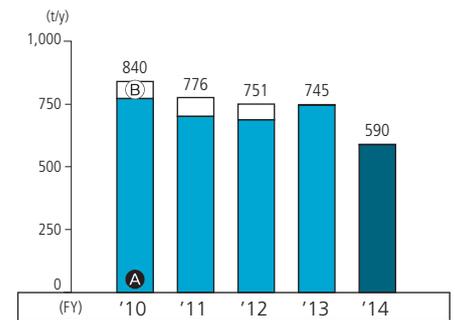
#### COD Emissions\*3



#### Total Phosphorus Emissions



#### Total Nitrogen Emissions



Note: As of October 2013, UBE has taken on the factory operations of Ube Ammonia Industry, Ltd. at the new Ube-Fujimagari Factory. As a result, the fiscal 2013 environmental impact data for Ube Ammonia Industry, Ltd. is calculated as part of that of the Ube-Fujimagari Factory.

Reference: Please refer to page 42 for environmental impact data by facility

### Glossary

\*1., \*2., \*3. See the Glossary on page 42

# 02-11 Effective Use of Waste

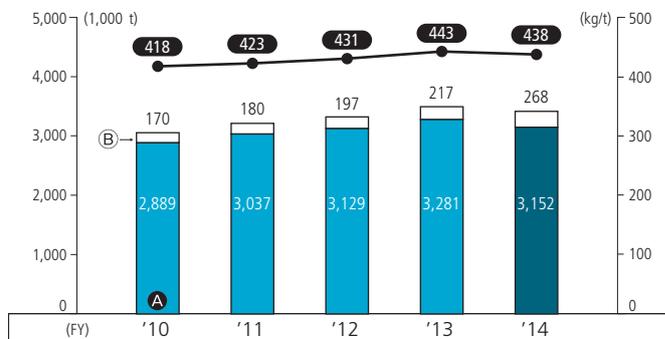
## Waste Recycling at Cement Factories

### Cement Factories Are the Ultimate Resource Recycling Factories

Waste can be reused as a raw material (material recycling) and an alternative fuel (thermal recycling) in the cement-making process. For this reason, a wide variety of waste is treated at cement factories. Cement kilns reach a very high internal temperature in the calcining zone (1,450°C), where substances that cannot be disposed of by ordinary incinerators can be burned and degraded. The kilns also offer a large waste-processing capacity. Ash produced by incineration can also be used as an alternative to clay, a component of cement, eliminating the need for final disposal sites for incineration ash. The three UBE cement factories actively accept and reuse various waste materials, such as coal ash, from both inside and outside the UBE Group. In fiscal 2014, the UBE cement factories made effective use of around 3.42 million tons of waste and byproducts. Of this, 3.08 million tons was sourced from outside of the UBE Group. This is one way the UBE is significantly contributing to the formation of a recycling-based society. In addition, we are developing new, environment-related businesses to be

future business pillars. UBE will continue to strengthen its systems for dealing with a variety of waste and work to expand its recycling business.

### Waste and Byproduct Use



Ⓐ Waste and byproducts used as raw materials  
 Ⓑ Waste used as alternative fuel  
 ● Usage amount per ton of cement (kg/t)

### History of Waste Treatment Facility Installations

FY	Alternative Fuels	Raw Materials
1998	Kanda Factory: Waste oil treatment facility	Isa Factory: Chlorine bypass system
1999		Ube/Kanda Factories: Wastewater receiving treatment facility
2000	Ube Factory: Waste plastic treatment facility (1st train)	
2001		Ube Factory: Sewage sludge treatment facility
2002	Kanda Factory: Waste plastic treatment facility (1st train)	Isa Factory: Sewage sludge waste treatment facility (1st train) Ube Factory: Chlorine bypass system Ube/Isa/Kanda Factories: Meat and bone meal treatment facility
2003	Isa Factory: Waste plastic treatment facility (1st train)	
2004	Isa Factory: Wood chip co-combustion facility for in-house power generation Isa Factory: Waste plastic treatment facility (2nd train)	
2005		Kanda Factory: High-chlorine bypass system
2006	Kanda Factory: Waste plastic treatment facility (2nd train)	
2007	Ube Factory: Waste plastic treatment facility (2nd train)	Isa Factory: Sewage sludge waste treatment facility (2nd train)
2008	Isa Factory: Waste plastic treatment facility (3rd train)	Kanda Factory: Waste for raw material loading facility
2009	Kanda Factory: Waste plastic treatment facility (3rd train)	Kanda Factory: Ash pretreatment facility
2011	Kanda Factory: Waste plastic pretreatment facility	
2012	Isa Factory sludge drying equipment	Ube Factory: Ash pretreatment facility Ube Factory: Closed sludge injection facility
2013-2014	Isa Factory: Waste plastic treatment facility Enhanced shredding capability (1st and 2nd trains)	

### Promoting Resource Recycling

Daiseki Co., Ltd. was founded in 1958, manufacturing lubricants and recycling waste oil. Since obtaining permission to process industrial waste in 1972, we have been promoting the creation of a recycling-based society based on a philosophy of making maximum use of limited resources.

Industrial waste comes in many forms and varieties, and we perform the intermediate processing of waste, creating materials that are then used in a wide array of products. In particular, Ube Industries uses many of our recycled materials, which include a wide range of liquids and solids. Ube Industries is highly aware of the importance of recycling industrial waste and always works constructively with us on new proposals. We really appreciate that mindset.

Going forward, we hope to continue striving together with Ube Industries to turn waste into resources.

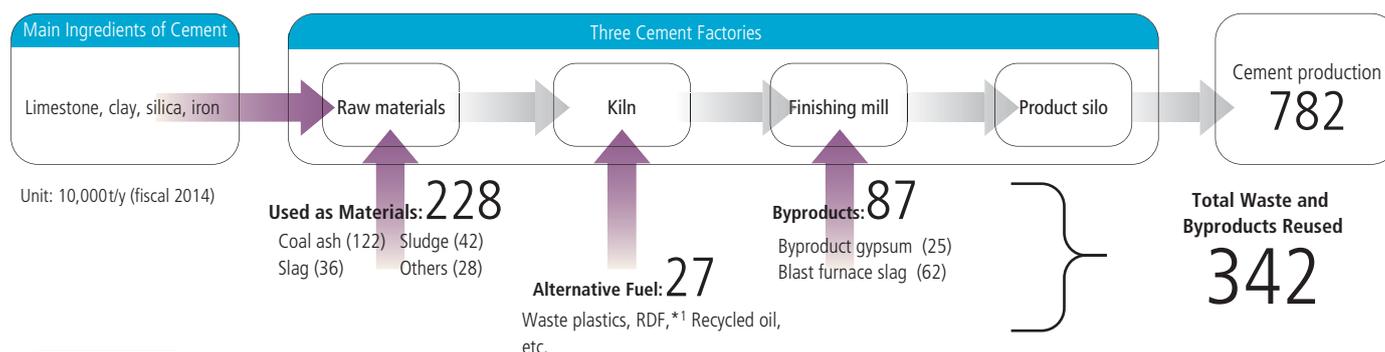
### Guest Message



**Tatsuya Yasunaga**

Manager,  
Kyushu Works, Daiseki Co., Ltd.

### Flow of Cement Production



### Glossary

\*1. Refuse Derived Fuel (RDF): Solid fuel made by compressing waste plastic, scrap wood and general garbage

# 02-12 Reduction of Industrial Waste

## Waste Reduction Target

By fiscal 2015, the UBE Group plans to have reduced the volume of industrial waste for external final disposal by 80% compared with the fiscal 2000 level.

## Industrial Waste Reduction

The entire UBE Group strives to recycle industrial waste and reduce its final disposal volume.

## Industrial Waste Generation

The UBE Group's industrial waste includes sludge, waste oil and waste plastic generated at chemical factories; coal ash generated at in-house power stations; and oil waste and inorganic waste generated at machinery factories.

## Industrial Waste Recycling

Most of the industrial waste produced by Group factories is recycled at facilities within the Group.

## Industrial Waste Discharged from Factories

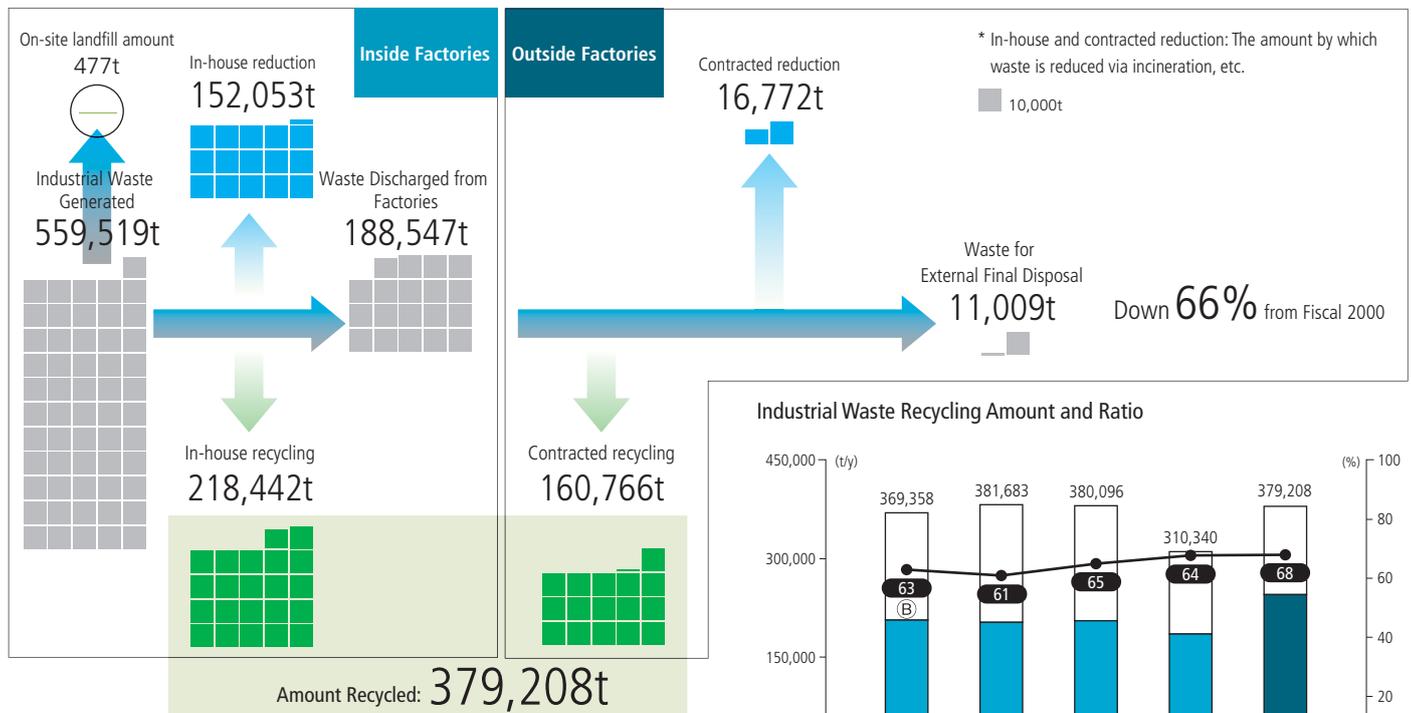
When contracting waste treatment or disposal outside the Group, the UBE Group utilizes industrial waste management forms (a waste manifest system) in compliance with waste treatment and clean-up laws and carefully manages the entire process.

## Industrial Waste for External Final Disposal

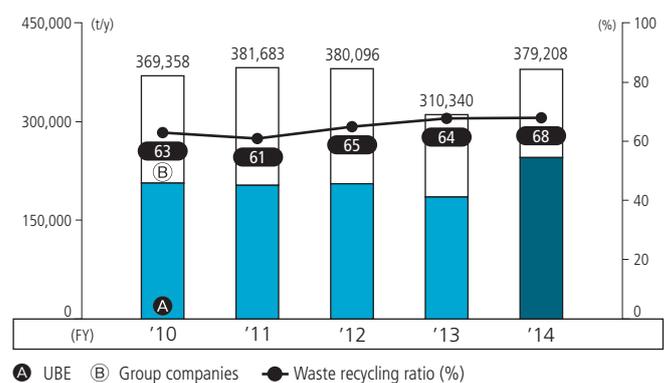
In fiscal 2014, we recorded a 66% reduction in industrial waste for external final disposal, well short of our target for fiscal 2015 of 80%, due to an increase in such waste at Group companies.

In fiscal 2015, we will continue to strive toward the target reduction of 80%.

## Overall Flow of Industrial Waste in Fiscal 2014

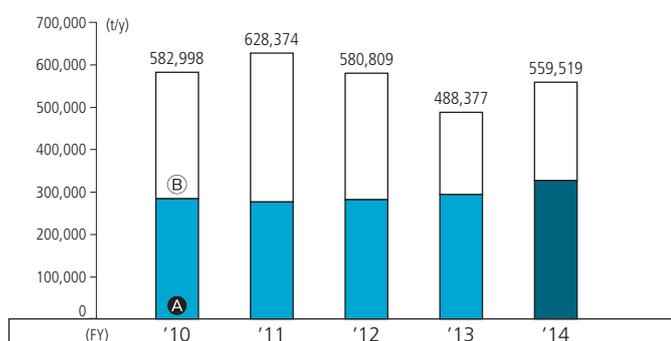


## Industrial Waste Recycling Amount and Ratio

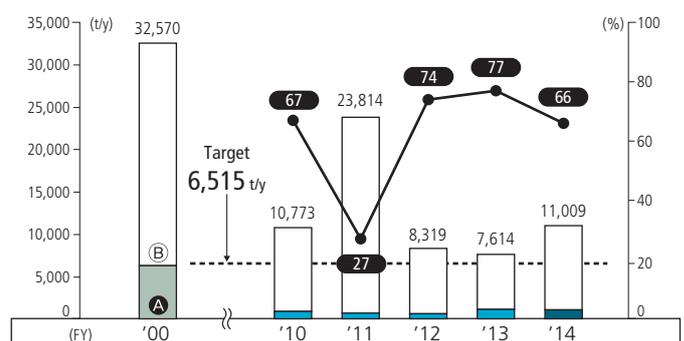


## Industrial Waste Generated and That Disposed of Outside the Group

### Industrial Waste Generated



### Industrial Waste for External Final Disposal



# Protecting a Beautiful Future for the Planet

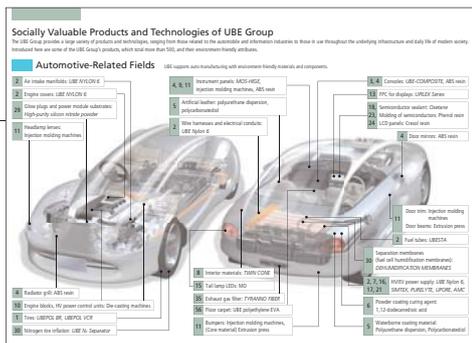
## Environmentally Valuable Products and Technologies of the UBE Group

The UBE Group works constantly to develop products and technologies that address issues faced by the world today.

This section features a number of products and technologies that are contributing to environmental conservation selected from among the more than 500 diverse products offered by the UBE Group.

For an overview of UBE's socially valuable products and technologies, please see

[http://www.ube-ind.co.jp/english/eco/eco\\_friendly.htm](http://www.ube-ind.co.jp/english/eco/eco_friendly.htm)



### ► Cement/waste processing technologies

We accept ash from incinerated urban waste, waste plastic, sewage sludge, coal ash and other waste that is difficult to process as resources. We use proprietary waste treatment technologies to pretreat this waste as necessary for reuse as materials and fuel for making cement.



### ▲ Raw material for waterborne coatings and artificial leather

**Polyurethane dispersion (PUD):** Contributes to the reduction of VOCs through use in waterborne coatings.

**Polycarbonatediol (PCD):** Contributes to the reduction of VOCs through use as an ingredient in resins for waterborne coatings and to resource saving as an ingredient in highly durable resins. [See page 8](#)

### ▲ Polybutadiene rubber (BR)

More elastic and abrasion resistant than natural rubber. Used in a wide variety of specialty products, including **UBEPOL VCR**, which enables the weight reduction of tires and thus reduces CO<sub>2</sub> emissions. [See page 10](#)

### ► Recycled compound **UBE-COMPOSITE**

Color-adjusted recycled plastic produced using proprietary technology that easily alters the coloring of waste plastic (polypropylene). Recycled plastic represents not only an effective use of resources, but also generates fewer CO<sub>2</sub> emissions during manufacturing than new plastic.



### ► Water and sediment quality environmental improvement agents **CLEAR WATER, MINERAL CLEAR**

Products that improve water and sediment quality and thus the environments of fish farms, enclosed water areas, etc. (sludge cleanup).



◀ Facility to produce biomass fuel for power plants

A facility to produce wood biomass from such sources as construction waste for use in cofiring power generation with coal. Contributes to resource saving and the reduction of CO<sub>2</sub> emissions.

▶ High-purity silicon nitride powder

Featuring excellent purity and regularity of particle size, our silicon nitride powder is used in applications that include as a material in the bearing balls used in wind turbines, contributing to the expansion of renewable energy. [See page 6](#)



- ▶ Functional electrolyte solution for lithium-ion batteries *PURELYTE*
- ▶ Microporous polyolefin film *UPORE*

This film is used in the lithium-ion batteries used in hybrid and electric vehicles, personal computers, mobile phones and other technologies.

[See page 9](#)

▶ 1,6-Hexanediol

Used as a raw material for dry laminate adhesive for food packaging and also for UV-curing coating used in various items, including mobile phones. Use of 1,6-Hexanediol requires no solvents and therefore contributes to VOC reduction.



▲ Exhaust gas processing agent *CALBREED SIII/EX Sorbalit*

Used to efficiently absorb harmful gases from waste incinerators and other sources.

▲ Exhaust gas processing facility *UBE RID*

Completely captures toxic hazardous gases/powders emitted by semiconductor/liquid crystal factories.

▲ Gas separation membranes

UBE organic solvent (alcohol) dehydration membranes  
 UBE carbon dioxide gas separation membranes  
 Used in applications related to bioethanol dehydration and to separate CO<sub>2</sub> from biogases, contributing to the development of environment-related businesses. [See page 10](#)



◀ Material for fragrance and toiletry products *HELIOFRESH, HELIOTROPINE*

An alternative to scents made with natural ingredients. These products prevent the deforestation of the Sassafras tree (a member of the Laurel family), helping to preserve woodlands.

▼ *POLYWRAP*

An additive-free polyethylene wrap. Made without chlorine, this highly safe product releases no dioxins or chlorine gases when incinerated.

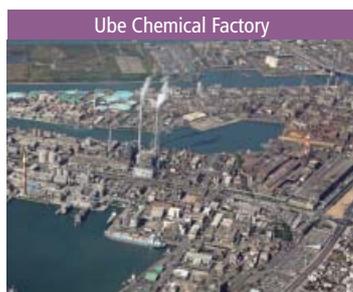


▶ *YASASHII KABE*

Primarily made from natural diatomite. Capable of humidity conditioning and the absorption and decomposition of the VOCs that cause sick building syndrome, helping to maintain a pleasant living environment.



# Site Reports (UBE Group's Principal Manufacturing Bases)



Ube Chemical Factory

**Location:** 1978-10 Kogushi, Ube City, Yamaguchi Prefecture

**Start of operations:** 1933

**No. of employees:** 1,375

**Main products:** Caprolactam, ammonium sulfate, nylon resins, industrial chemicals, fine chemicals, high-purity chemicals, polyimide products, separation membranes, specialty membranes, new materials, active pharmaceutical ingredients, intermediates

As the mother factory for the Company's chemical business, this factory produces a wide range of products, with due consideration given to the environment, product quality, safety and operating stability. The factory houses a number of complex plants handling a wide range of chemical substances. Accordingly, to help all employees comply with basic rules and principles while enhancing their frontline abilities and teaching them to think for themselves, in April 2014 we established the Chemical Training Center. The experiential training equipment previously distributed around the factory is now consolidated at this center. We are using the center to help promote communication between employees. By strengthening various risk assessments, these efforts are also helping to improve facilities and operations, reinforce the self-managed process safety system, and further reduce chemical substance emissions.



Chiba Petrochemical Factory

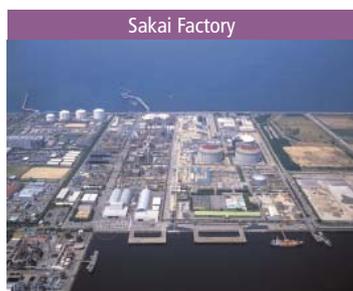
**Location:** 8-1 Goi Minami Kaigan, Ichihara City, Chiba Prefecture

**Start of operations:** 1964

**No. of employees:** 281

**Main products:** Polyethylene, polybutadiene rubber, waterproofing materials

The Chiba Petrochemical Factory is located in the Keiyo Industrial Zone. We produce petrochemical products that support people's lives. To fulfill our promise to ensure the safety and security of local communities and customers, we strive to anticipate every possible risk and promote related prevention measures. Regarding our environmental initiatives, we are significantly reducing the factory's environmental impact by ceasing the use of highly harmful solvents and putting in place countermeasures in such areas as exhaust gas and the incineration of waste solvents in boilers. In addition, we regularly monitor the water and gas discharged from the factory in order to identify irregularities early on. With the aim of encouraging interaction between the local community and UBE, we participate in the Goi-Rinkai Festival, hold factory tours for local elementary school students and engage in other events. Through such efforts, we support active exchange with the local community. 2014 marked the factory's 50th anniversary. Going forward, we will continue to contribute to the development of the local community.



Sakai Factory

**Location:** 3-1 Chikko Shinmachi, Nishi-ku, Sakai City, Osaka

**Start of operations:** 1967

**No. of employees:** 252

**Main products:** Electrolyte solutions, specialty membranes, separation membranes, polyimide products, recycled compounds

Our factory is located in Sakai City, which, as an environment-friendly model city, has announced the "Cool City Sakai" concept. The factory manufactures chemical products and specialty materials and is taking proactive steps to conserve energy and resources. In 2014, we invited members of the local community to visit the factory to exchange opinions and promote interaction with residents. Our goal is to contribute to the local community through dialogue with local residents and cooperation with the government while maintaining safe and secure operations. In January 2015, we announced the establishment of the Osaka R&D Center at the Sakai Factory. This will be UBE's first new research facility in 20 years. Conducting integrated R&D ranging from battery materials and other functional products to production technologies, this center will operate as a central base for efficient product creation.



Ube-Fujimagari Factory

**Location:** 2575 Fujimagari, Ube City, Yamaguchi Prefecture

**Start of operations:** 2013

**No. of employees:** 96

**Main products:** Ammonia, liquid carbon dioxide

This factory was established in October 2013, taking over the factory operations of Ube Ammonia Industry, Ltd., which had been in operation since 1969. With operations that, among the Ube District factories, are the furthest upstream along the value chain, the Ube-Fujimagari Factory is the only factory in Japan that produces ammonia, an ingredient of lactam and nylon chains, from petroleum coke. In fiscal 2014, in terms of disaster prevention, the factory received Accreditation of Completion and Process Safety Inspection in accordance with the High Pressure Gas Safety Act. Going forward, we will conduct even more exacting internal inspections and checks of facilities while also working with employees and partner companies to enhance safety and hygiene as well as environmental preservation. By doing so, we aim to provide peace of mind for the local community.



Ube Cement Factory

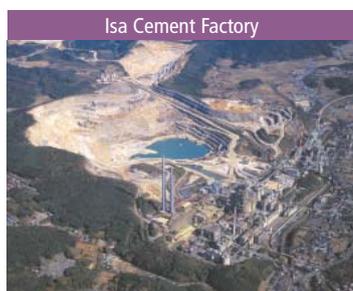
**Location:** 1978-2 Kogushi, Ube City, Yamaguchi Prefecture

**Start of operations:** 1923

**No. of employees:** 230

**Main products:** Cement, limestone

The Ube Cement Factory is a manufacturing and shipping base for cement and limestone products produced in the Ube and Isa regions. At the same time, this factory is a production base for specialty cement that meets various customer needs. We use waste plastic chips and wood biomass as alternative fuels in our manufacturing processes, and the whole factory works together to reduce energy consumption. The factory has been contributing to the recovery from the Great East Japan Earthquake, working to prevent and mitigate future disasters, helping to address the problem of aging infrastructure and promoting the creation of a recycling society through the manufacturing of cement and reuse of waste materials and byproducts. With the aim of making this the safest cement factory in Japan, every day all employees work together and with partner companies to prevent operational accidents and accidents related to process safety.



Isa Cement Factory

**Location:** 4768 Isa, Isa-cho, Mine City, Yamaguchi Prefecture

**Start of operations:** 1948

**No. of employees:** 163

**Main products:** Cement, limestone

Located in Mine City, home of Akiyoshidai Quasi-National Park—famous for its karstic (limestone) topography—Isa Cement Factory has one of the largest cement manufacturing and limestone mining operations in Japan. With our factory and mine situated close to the local community, we have established and operate within voluntary managerial targets that are stricter than existing laws and regulations in such areas as noise, vibrations and water discharge. We also recognize the importance of maintaining smooth communication with the local community. We seek to become an "eco factory trusted by the community" by paying the utmost attention to environmental protection while participating in various local events and operating factory tours. In recent years, we have received favorable reviews for tours of our industrial facilities, which highlight roads used exclusively by UBE. [See page 25](#)

### Kanda Cement Factory



**Location:** 7 Nagahama-machi, Kanda-cho, Miyako-gun, Fukuoka Prefecture  
**Start of operations:** 1964  
**No. of employees:** 116  
**Main products:** Cement, limestone

The Kanda Cement factory is a leader in waste processing. After installing a world-class high-chlorine bypass system in 2005, in 2012 we commenced operations of facilities that convert waste plastic to fuel. By pretreating waste that has high chlorine content using these facilities, we are able to use it as a source of thermal energy that is on par with coal. Furthermore, in January 2016, exhaust heat power generation facilities are scheduled to come online.

Since its founding, the Kanda Cement Factory has striven to beautify and contribute to the greenery on its grounds. In recent years, we have also worked to green former mining sites, undertaken cleanup activities along public roads around the factory and accepted guests for factory tours. Through these efforts, we are working enthusiastically to promote harmonious coexistence with local communities.

[See page 25](#)

### Okinoyama Coal Center



**Location:** 1980-29 Okinoyama, Kogushi, Ube City, Yamaguchi Prefecture  
**Start of operations:** 1980  
**No. of employees:** 34  
**Main products:** Storage and distribution of coal and petroleum coke

Although UBE started out in the coal mining business, the Company completely withdrew from such operations in 1977, having closed the Okinoyama Coal Mine in 1967. However, in 1980 the Okinoyama Coal Center commenced activities focused on such coal-related businesses as operating Japan's largest fuel coal import transshipment station (annual amount handled: 6 million tons), which provides a stable supply of coal, an important energy source for Japan. In particular, the importance of coal as fuel for thermal power generation has recently been reevaluated in light of the suspension of nuclear power generation in the aftermath of the Great East Japan Earthquake. Aiming to maintain the trust of the local community, we are working in unison with employees and partner companies in the areas of health and safety, environmental preservation, and process safety and disaster prevention.

### Ube Machinery Corporation, Ltd.



**Location:** 1980 Okinoyama, Kogushi, Ube City, Yamaguchi Prefecture  
**Start of operations:** 1914  
**No. of employees:** 987

**Main products:** Die-casting machines, injection molding machines, extrusion presses, crushing machines, ceramic machines, transportation equipment, water screen equipment, bridge members, floodgates, steel structures, and the manufacture, sales, service and maintenance of other industrial machinery

Ube Machinery Corporation marked its 100th anniversary in 2014. We continue to evolve the company's manufacturing prowess, which has been handed down over generations. By doing so, we are reinforcing our ability to meet diversifying needs, integrating and globalizing manufacturing, sales and service operations, and delivering valuable products that satisfy the expectations of customers around the world. At the same time, through technological innovation, we are further advancing the development of environment-friendly products and reducing the environmental impact of our manufacturing and service operations.

Our fundamental policy is to become a company with an exemplary safety record by fostering a culture that makes safety its highest priority. Accordingly, we are enhancing safety-related activities implemented independently by all employees in their respective roles while steadily implementing employee health maintenance and improvement plans. These efforts are yielding work environments that are safe and healthy for all employees.

### Thailand



**UBE Chemicals (Asia) Public Co., Ltd.**  
**Location:** Rayong, Thailand  
**Start of operations:** 1997  
**No. of employees:** 502  
**Main products:** Caprolactam, ammonium sulfate, nylon 6 resin, nylon compounds

**THAI SYNTHETIC RUBBERS COMPANY LIMITED**  
**Location:** Rayong, Thailand  
**Start of operations:** 1998  
**No. of employees:** 71  
**Main products:** Polybutadiene rubber

**UBE Fine Chemical (Asia) Co., Ltd.**  
**Location:** Rayong, Thailand  
**Start of operations:** 2011  
**No. of employees:** 22  
**Main products:** 1,6-hexanediol, 1,5-pentanediol

UBE Group (Thailand)'s R&D, manufacturing and administration divisions work together to protect the environment by reducing the overall volume of waste alkali for disposal and treatment the group produces as well as the amount of steam its uses. Through these and other measures, we are continuously improving plant operations and producing better service for customers. We also give greatest priority to safety, occupational health and environmental issues in the course of our daily operations. In recognition our ongoing efforts and certain particularly outstanding achievements, we have received a steady stream of awards from the Thai Ministry of Labor and Ministry of Industry for excellence in health and safety over the years. We are striving to achieve world-leading productivity and to harmonize and build positive relationships with local communities, thus helping to form communities in which industry and the rest of society mutually benefit one another.

### Spain



**UBE Corporation Europe, S.A./UBE Chemical Europe, S.A.**  
**Location:** Castellón, Spain  
**Start of operations:** 1967  
**No. of employees:** 296  
**Main products:** Caprolactam, ammonium sulfate, polycarbonatediols, 1,5-pentanediol, 1,6-hexanediol

**UBE Engineering Plastics, S.A.**  
**Location:** Castellón, Spain (adjoining UCE)  
**Start of operations:** 2004  
**No. of employees:** 60  
**Main products:** Nylon 6 resin, copolymerized nylon

In fiscal 2014, we achieved a 6% improvement in our overall energy consumption intensity in caprolactam and ammonium sulfate production by reinforcing the production of high-value-added large-grain ammonium sulfate while reducing costs and improving efficiency. In nylon production, we added a polymerization line and introduced production technologies that enable the manufacture of new high-value-added products, bringing our annual production capacity up to 30,000 tons. We are also implementing various projects aimed at expanding sales of these products. In terms of factory safety management, we established new procedures, such as Process Hazard Analysis and Management of Change, and continue to implement the Strategic Safety Plan.

Furthermore, we established a company in Mexico as our second subsidiary in Latin America, aiming to expand the Mexican market as the country's economy continues to grow. We are currently advancing preparations to obtain ISO/TS certification to reinforce sales promotion in the automotive sector.

We also contribute to local projects that support biodiversity conservation, such as activities to maintain the Mijares River, which runs near our factories. [See page 32](#)

# Third-Party Verification and Opinion

In June 2015, UBE received third-party verification of the environment and safety activities outlined in the *UBE Group CSR Report 2015* from the Responsible Care Verification Center. UBE annually receives verification in order to enhance the trustworthiness of its CSR reports, and it aims to further improve the quality and content of future CSR reports by reflecting the feedback the Center provides in its verification questionnaire and written opinion regarding the verification results.



Yuzuru Yamamoto  
President & Representative Director  
Ube Industries, Ltd.

## *UBE Group CSR Report 2015* Third-Party Verification—Written Opinion

July 2, 2015

Junji Takase  
Chief Director  
Responsible Care Verification Center  
Japan Chemical Industry Association

### Objectives of CSR Report Verification

The Responsible Care Verification Center has verified the *UBE Group CSR Report 2015* (hereinafter, “the CSR Report”), created by Ube Industries, Ltd., in order to provide its opinion regarding the following items in its capacity as an expert in the chemical industry:

- 1) Rationality of the methods used to calculate and tabulate the performance indicators (numerical data) and accuracy of numerical data
- 2) Accuracy of the information (other than numerical data) provided in the CSR Report
- 3) Performance of Responsible Care (RC) activities
- 4) Characteristics of the CSR Report

### Verification Procedures

- The Center staff visited the head office of Ube Industries, Ltd. and asked questions to verify the rationale of the method the Company used to compile numerical data reported by each of its sites (offices and plants) and to check the accuracy of information provided in the CSR Report. Employees in charge of relevant business operations and those in charge of creating the CSR Report answered the questions of the Center staff, presented documentation, and gave explanations.
- The Center staff also visited the Ube-Fujimagari Factory and asked questions to verify the rationale of the method the factory employed to calculate the numerical data reported to the head office and the accuracy of the numerical data and other information provided in the CSR Report. Factory employees in charge of relevant business operations and those in charge of creating the CSR Report answered the questions of the Center staff, presenting documentation and providing explanations. The Center staff also checked the consistency of the items used with the material evidence submitted.
- The Center used sampling methods to verify the numerical data and other information contained in the CSR Report.

### Opinions

- 1) Rationale of the method used to calculate and tabulate the performance indicators and accuracy of the numerical data
  - Both the head office and the Ube Chemical Factory calculated and tabulated the performance indicators in a rational manner.
  - Performance-related numerical data within the scope of the survey was accurately calculated and tabulated.
- 2) Accuracy of information contained in the CSR Report, excluding numerical data
  - The information published in the CSR Report was accurate. The Center pointed out that some of the expressions used in the draft CSR Report were not appropriate or easy to understand. These expressions have been corrected in the final version of the report.
- 3) Performance of the Responsible Care (RC) activities
  - The Center commends the designation of diversity promotion as a key management strategy and the establishment of a concrete target for the appointment of women to management positions. We hope to see these moves contribute to the improvement of UBE’s CSR and responsible care activities.
  - We commend the wide range of measures and systems in place to address risks faced by the Company.
  - We commend the Group’s efforts to support overseas Group companies. The efforts include support for intellectual property initiatives, the convening of regular meetings of human resource managers from in and outside Japan, and visits by industrial doctors to overseas bases.
  - The Ube-Fujimagari Factory displayed a positive, proactive stance as exemplified its outstanding level of organization, the obtaining of ISO certification, the adoption of an integrated management system and the acquisition of independent accreditation of high-pressure gas process safety. Going forward, we hope to see the factory focus on target management for these systems and raise the effectiveness of the PDCA cycle.
- 4) Characteristics of the CSR Report
  - The report identifies UBE’s corporate philosophy, “living and prospering together” as the basis for the Group’s CSR. From the perspective of this philosophy, the report explains the Group’s relationships with stakeholders, including local communities, shareholders, employees, customers and communities, in terms of its social contribution, IR and information disclosure activities and promotion of human rights and diversity, as well as through the Special Feature, “The UBE Group Meeting Society’s Needs.” The report clearly conveys the Groups’ commitment to the spirit of “living and prospering together.”

# Third-Party Expert Comments

The UBE Group welcomes expert comments on its CSR report to enhance objectivity and identify new CSR challenges. We intend to reflect these opinions in future reports and take them into consideration when promoting UBE Group CSR activities.

## Katsuhiko Kokubu

Professor of Social and Environmental Accounting  
Graduate School of Business Administration, Kobe University

### CSR Focused on Contribution to Local Communities

The UBE Group's CSR is characterized by the priority given to contributing to local communities in line with the Group's corporate philosophy, "living and prospering together." This theme is emphasized in the message from President Yuzuru Yamamoto, and quite a few pages are devoted to covering related initiatives, including those undertaken overseas. These initiatives are very important, and worthy of praise. In future reports, in addition to examples of individual activities, it may be useful to show the role and position of such activities within the Group as a whole and to include feedback from members of local communities. I think such additions would not only make the content clearer and more concrete, but could help to enhance the actual activities.

### Response to Environmental Issues through the Medium-Term Management Plan

The UBE Group has established "address and be part of the solution for resource, energy and global environmental issues" as one of the three basic strategies of its medium-term management plan. The posture taken by the Group here, that is, making addressing environmental issues a basic strategy, is extremely important and should be praised accordingly. The report also offers highly detailed disclosure of environmental data. However, the link between such disclosure and the medium-term management plan is clearly expressed only in the "Measures to Prevent Global Warming" section. The President's Message says that Group will strive to "further expand UBE businesses that contribute to the environment," so I think that unifying management and disclosure in this area would make the connection to the medium-term management plan clearer.

### Promotion of Diversity

The promotion of diversity is also emphasized in the President's Message, and the Group's positive stance on the issue is accordingly detailed in the report. I also think that the report's broad conceptualization of diversity that embraces

women, people with disabilities, foreign nationals and seniors, is very important for UBE as a company that seeks to contribute to local communities. Promoting diversity requires a fine-tuned, highly responsive approach. I therefore hope to see UBE listen to those affected and actively promote dialogue as it rolls out measures in this area.

### Developing KPIs

I believe that the level of the UBE Group's CSR activities, including disclosure via this report, is among the highest in Japan. Going forward, I think that the establishment of key performance indicators (KPIs) for CSR activities would clearly bring these activities up to a globally excellent level. While the establishment of KPIs would necessitate discussion and debate, KPIs are very important to implementing ongoing CSR management and establishing accountability globally. I hope that UBE will consider the use of KPIs as a way to take its activities to a new level.

## Katsuhiko Kokubu

After graduating with a PhD from Osaka City University's Graduate School of Business, Dr. Kokubu served as an associate professor at Osaka City University and Kobe University. In 2011, Dr. Kokubu assumed a position as professor at Kobe University's Graduate School of Business Administration, and in 2014 became chair of the program. Dr. Kokubu also serves as the chairman of Material Flow Cost Accounting (MFCA) ISO/TC207/ WG8 Committee established by the Japanese Ministry of Economy, Trade and Industry (METI). Dr. Kokubu has served many times a member and chairman of various committees overseen by METI and Japanese Ministry of the Environment. In addition, Dr. Kokubu's major publications include *Material Flow Cost Accounting* (Nikkei Publishing Inc.) and *Accounting System Supporting Corporate Decision-Making for Environmental Management* (Chuokeizai-Sha, Inc.).



Official website: [www.b.kobe-u.ac.jp/~kokubu](http://www.b.kobe-u.ac.jp/~kokubu) (Japanese language only)

### Response to the Third-Party Comments



We very much appreciate Dr. Kokubu's valuable insights with regard to the *UBE Group CSR Report 2015*.

We are very glad to hear Dr. Kokubu's favorable assessment of our CSR activities that prioritize contributing to local communities, both in and outside Japan, based on the Group's corporate philosophy, "living and prospering together." In future reporting, we hope to make

use of Dr. Kokubu's suggestion that we include feedback from members of local communities to make the report's content clearer and more concrete.

Addressing environmental issues and promoting diversity are very important to maintaining the confidence of society. As such, we are formulating more concrete measures in these areas for our next medium-term management plan (for fiscal 2016 to 2018) to make our commitment to these issues clearer to stakeholders.

Dr. Kokubu has suggested the adoption of KPIs as CSR benchmarks in the past, as well. Setting quantitative targets for CSR activities and managing their achievement does present certain difficulties, but we will discuss and consider the suggestion.

We will continue to do our utmost to ensure that the UBE Group continues to grow into the future.

## Atsushi Yamamoto

Executive Officer with Responsibility for Group CSR

\*KPI (key performance indicator): A benchmark used to evaluate a company's progress toward certain important goals

# Editorial Policy

We began publishing an annual RC report in 1997 to introduce our environmental initiatives. We subsequently changed the name of the report to the *CSR Report*. This year, 18 years after the very first publication of the report, we have created the *UBE Group CSR Report 2015* as our 11th such report. In our editing of this year's report, we have maintained a commitment to producing a readable document that is of interest to readers. The main features of the 2015 edition are as follows:

## 1. Special Feature: The UBE Group Meeting Society's Needs

For the UBE Group to fulfill its role as a useful member of society, and to help solve various social issues through its business, the Group is advancing the development of new products and technologies. Providing examples of this, the special feature focuses on how UBE's pharmaceutical business (both drug discovery and contract production) helps support the health of people around the world and on how the Group is contributing to the automotive field, which plays an essential part in supporting comfortable, modern lifestyles.

## 2. The Scope of Living and Prospering Together

Expanding the scope of the Group's corporate philosophy, "living and prospering together," through its everyday business activities is the essence of the Group's CSR activities.

We used an illustration to express the idea of expanding the scope of our corporate philosophy, living and prospering together, through initiatives related to enhancing corporate value, achieving sustainable growth, securing the confidence of stakeholders, and promoting harmonious global coexistence.

## 3. Enhance interactive communication:

To clearly show how the public views the UBE Group and to identify new CSR-related issues for the Group, we include "Guest Messages" and other opinions from third parties in this report. By doing this, we aim to realize interactive communication.

## 4. Create an easy-to-read page format:

We structured this report to feature concise content and an easy-to-read design in order to make it satisfactory for all of our stakeholders. We have paid particular attention to the Color Universal Design and have used universal fonts in this report.

## Scope of This Report

Period Covered	Fiscal 2014 (from April 1, 2014 to March 31, 2015) (The report, however, does at times refer to activities conducted in fiscal 2015 and future plans.)		
Companies covered: • The UBE Group	Of which the following companies are covered in the reporting of major financial data (page 13)	Ube Industries, Ltd. and its consolidated companies (95)	Consolidated subsidiaries: 71 Equity-method affiliates: 24
	Of which the following companies are covered in the reporting of environmental performance data	Ube Industries, Ltd.	Four chemical factories (Chiba, Sakai, Ube and Ube-Fujimagari) Three cement factories and one research center (Ube, Isa and Kanda, and the Technical Development Center) The Okinoyama Coal Center Research laboratories of the Corporate Research & Development Division (the Organic Chemistry Research Laboratory and Organic Specialty Materials Research Laboratory)
		Other Group companies (10)	Ube Film, Ltd., Meiwa Plastic Industries, Ltd., Ems-Ube, Ltd., UBE-MC Hydrogen Peroxide, Limited, Ube Exsymo Co., Ltd., Ube Material Industries, Ltd., Ube Board Co., Ltd., Ube Machinery Corporation, Ltd., Ube Steel Co., Ltd., Fukushima, Ltd.
Definitions	UBE: refers to Ube Industries, Ltd. (unconsolidated) The UBE Group: refers to the UBE Group companies, including Ube Industries, Ltd.		
Areas covered	Japan and some locations overseas (including Thailand, Spain and others)		
Statistical data published in this report	<ul style="list-style-type: none"> <li>• All statistical data and relevant descriptions published in this report, excluding the environmental performance data, cover all Group companies.</li> <li>• In principle, data is for the last five years (fiscal 2010 to 2014)</li> <li>• The scope of data, however, does vary in places. In such cases, the specific scope is noted on the relevant page.</li> </ul>		
Reference guidelines	This report was created with reference to the Japanese Ministry of the Environment's Environmental Reporting Guidelines (2012 edition). We also referred to the Ministry's Environmental Performance Indicators Guidelines for Organizations (2002 edition) for environmental performance data and to the Ministry's Environmental Accounting Guidelines (2005 edition) for environmental accounting standards.		

## Main Tools of Communication

### Website

The UBE Group's website delivers the latest information about UBE to its stakeholders in Japanese and English. The website is divided into sections, namely, Corporate Profile, News Releases, Investor Relations, Products, Research & Development and CSR Activities.

[www.ube.co.jp](http://www.ube.co.jp)



### Corporate Brochure and UBE Group Introductory Video

The corporate brochure succinctly summarizes the UBE Group's business activities. The UBE Group introductory video introduces UBE's businesses, products and facilities in video format. Both the brochure and video are available in Japanese, English and Chinese.



(left)  
Corporate brochure  
(below)  
Introductory video



### Annual Report

The Company's annual report is targeted mainly toward institutional investors and is printed every July, in English only. The report mainly covers management strategy, results and financial information. The report is available in PDF format in Japanese and English on UBE's website.



### UBE Business Report

This report, intended mainly for individual investors, is printed semiannually in Japanese only. The report explains UBE's businesses and strategies in an easy to understand way and also explains various procedures related to holding shares. The Company's first business report was compiled in 2013, following the overhaul and renaming of its predecessor publication, *UBE Stockholder Communication*. The *UBE Business Report* is also available as a PDF in Japanese on UBE's website.



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Drier at the third pharmaceutical factory (see page 4)

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CSR Department



**UBE DOG**  
ロボくん

The UBE DOG was created in March 1997 as a character for the UBE Group's TV commercials.



The "Heartfelt Mark" logo affirms that this report was published by a company that proactively promotes the employment of persons with disabilities.



Responsible Care®