UBE GROUP PROFILE

Wings of technology
Spirit of innovation

UBE INDUSTRIES LTD.
Wings of Technology, Spirit of Innovation. That’s our DNA driving our global success.

The UBE Group, which is imbued with frontier spirit and uses limitless technology to live in harmony with the world, will continue to create next-generation value.

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Over its history of more than 100 years, UBE has continuously responded to the changes in society and industry, developing a range of businesses and producing a variety of products while consistently reforming itself. UBE’s ability to “make things” through creative technologies and the UBE spirit of challenge, which embraces change positively, combine to form the Company’s core identity. These values are passed down from person to person through the decades as UBE’s corporate DNA.

Under the policy of development centered on the differentiated chemical business, the UBE Group currently covers six fields: chemicals and plastics; specialty chemicals and products; pharmaceuticals; cement and construction materials; machinery and metal products; and energy and environment. In each of these areas, the companies concentrate on their core competence guided by the keywords of “technology” and “innovation.” Brandishing our unique technologies and products, our goal is to expand our share in target markets both within Japan and abroad, and to spur on sustainable growth.

From the time UBE began “living and prospering together” with Ube City of Yamaguchi Prefecture, the Company’s birthplace, the Company has maintained an unchanging tradition of being thoroughly committed to upholding its bonds with society. How should a successful company live with the community, the world, and the planet? Seeking new answers with this theme in mind, the UBE Group continues to soar into the world on an endless flight to the future.
Chemicals & Plastics

Chemicals and plastics are a key component of UBE’s chemical business. This sector supports modern industry and the everyday comfort and convenience of consumers with a wide range of materials. These include caprolactam, one of the raw materials used in the production of polyamide, for which we rank among the top three manufacturers in the world; an array of industrial chemicals; engineering plastics such as polyamide resins; and commodity plastics such as ABS resins and polyethylene, and polybutadiene rubber.

Basic Chemicals

Caprolactam, a raw material for the manufacture of polyamide fibers and resins, typifies UBE’s basic chemicals lineup. Ube Industries has established a global tri-polar system with production bases in Japan (UBE Industries, Ltd.), Spain (UBE Chemical Europe S.A., a group company) and Thailand (UBE Chemicals (Asia) Public Co., Ltd., a group company). The Company boasts a high level of technological expertise and a caprolactam production volume that ranks among the top three global manufacturers.

In the industrial chemicals field, UBE manufactures numerous products centered on organic chemicals, inorganic chemicals, and gases. The Company supplies these materials to a wide range of industries, including chemicals, steel, machinery, electrical, and foodstuffs. Ube Ammonia Industry, Ltd., a group company, manufactures ammonium, which is a basic raw material used in a wide range of applications. At UBE MC Hydrogen Peroxide Ltd., hydrogen peroxide, with applications ranging from paper and pulp bleaching to PCB etching and waste water treatment, is manufactured.

In the field of agriculture and gardening, MC FERTICOM Co., Ltd., manufactures specialty fertilizers including slow-release fertilizer and compound fertilizer with coated urea. These products are widely adopted in the cultivation of padded rice and vegetables.

Resins

In the engineering plastics field, UBE’s main products are Polyamide 6 and Polyamide 12, of which raw materials are also produced in-house. The total production system helps the Company keep its competitive edge.

The wide variety of grades available for Polyamide 6 allows it to be used in an extremely broad range of applications from automotive parts to electrical appliances, electronics, building materials, fishing lines, synthetic leather, and food packing films. As a material contributing to the weight reduction of automobiles, Polyamide 6 is a material in huge worldwide demand. A global triple network with plants in Japan, Spain and Thailand has been established in the same manner as Polyamide 6 throughout the world. This triple network has been established for technological services as well to ensure excellent quality. There is also Polyamide 66, which features enhanced heat resistance. It is utilized for automotive parts, electrical appliances and electronics.

UBE also manufactures Polyamide 12 UBIESTA® from the raw material lauractam, which is supplied from UBE-Ube, Ltd., a group company. Polyamide 12 boasts excellent extrusion and chemical resistance characteristics, and a demand for it is growing in applications for automotive fuel tubes, air brake tubes, and industrial machine tubes. This is also attracting attention as a substitute material for traditional city gas pipes. In addition, polyamide elastomer, UBESTA XPA®, is being increasingly put to use as a material for professional sports shoes due to its high resistance to frictional fatigue and other superior properties.

UBE's polybutadiene rubber UBE-POL BR® is a highly trusted product adopted for tire production by the world’s major tire manufacturers. It has an impressive record of achievements with applications in not just automobile tires but also golf balls, auto parts, industrial parts, and footwear, as well as in modified polyester resins. In particular, UBEPOL VCR®, developed through our unique technology, has earned admiration for its contribution to higher performance in tires.

Production facilities are located in Japan’s Chiba prefecture, Thailand, and China, boasting the largest production capacity in Japan and the fourth largest in the world. Through this tri-polar network, superb UBE brand products are supplied to industries not only in Japan, but throughout the world as well. To accommodate diversifying demands, the UBE Group is amplifying its range of highly specialized products.

Synthetic Rubbers

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Specialty Chemicals & Products

The UBE Group is focusing its greatest strengths in the chemical business that holds a wealth of future prospects. Within the differentiated chemicals domain, the field of specialty chemicals and products is where our chemical technology-based excellence can be utilized to the fullest. By creating high-value-added, strikingly original chemical products such as materials with highly specialized or environmentally friendly features, this business responds to the expectations of the most sophisticated areas of society.

Specialty Chemicals

The diverse applications for specialty products, which draw on UBE’s expertise in organic and polymer chemicals and inorganic technology, include electronic materials, battery materials, communication parts, separation membranes, and ceramics.

Polyimides

UBE’s original super-heat-resistant polyimide resins are widely used in electronic and electrical equipment, as well as in the aerospace industry. A leading product, UPLEX®-S, a polyimide film, is used in the tape carrier package (TCP), the substrate for integrated circuits (IC), because of its superior size stability, as well as in a two-layered copper-clad laminate with copper plating by sputtering, employed for the chip-on-film (COF) substrate of large liquid crystal display driver IC. UPLEX®-N, a copper-clad laminate based on UPLEX®-VT, which retains the features of UPLEX® with the addition of thermal adhesion functions, is manufactured and sold by Ube-Nitto Kasei Co., Ltd., a group company. This product is meeting strong demand in electronic applications such as digital cameras and mobile phones. In sophisticated down-stream areas that utilize the features of polyimide film, commercialization of high-value-added products such as double-sided circuit boards for COF drawing a fine-pitch circuit is now underway. The products of polyimide are not limited to film alone. Liquid products such as U-Varnish®, a polyimide precursor, are utilized in printer applications which demand high strength and heat resistance, and UPICOAT® is highly lauded as an insulating over-coat for electronic circuit boards. A wide diversity of other polyimide products is also available, including polyimide powder and compact, to meet the application demands of our customers.

Battery Materials

Battery materials show the most outstanding presence within our range of specialty products. These materials include electrolytes and separators for lithium ion secondary batteries. The electrolyte Pure Lyte®, produced from in-house dimethyl carbonate (DMC), has continued to dominate the market as “functional electrolyte” that responds to the individual needs of customers. Separators, known as U-Pose®, are triple-layer micro-porous membranes made of polyethylene and polypropylene. Sales are soaring due to extremely uniform pore shape, and high safety in the event of over-charging.

Telecommunication Devices

In the field of telecommunication devices, the Group supplies dielectric duplayers and filters, which are essential for cellular phones and other forms of mobile communications, as well as positive temperature coefficient elements applied in products such as headsets and protection circuits. The products have won high regard for their precise response to demands for miniaturization and higher performances. The production base of the manufacturer, Ube Electronics Ltd., has been established in China to serve this growing demand. Based on such achievements, next generation devices that combine our original material and circuit design technologies such as LTCC and FBAR are under development for multi-band wireless communication.

Semiconductor Related Materials

UBE also has a wide variety of products used in the manufacturing of semiconductors. Its line of high-purity chemicals includes boron (boronide), metal organics (MO), nitric acid, sulfuric acid, aqueous ammonium, catechol, and hydroxylamine sulphate. The dry etching exhaust gas treatment equipment also has a superb reputation. Malwa Plastics Industries, Ltd. brings excellent products to market, such as phenolic resins for semiconductor sealants.

UBe-Nitto Kasei Co., Ltd., is strong in optical cable related materials such as Rasen Compose® and Compose® Tension Membrane, as well as components such as HIPRESICA®, a silica particle used in applications such as liquid crystal display spacers.

Manufactures phenol resins. A leading product, Rasen Compose®, is a silica particle used in applications such as liquid crystal display spacers. In the field of telecommunication devices, the Group supplies dielectric duplayers and filters, which are essential for cellular phones and other forms of mobile communications, as well as positive temperature coefficient elements applied in products such as headsets and protection circuits. The products have won high regard for their precise response to demands for miniaturization and higher performances. The production base of the manufacturer, Ube Electronics Ltd., has been established in China to serve this growing demand. Based on such achievements, next generation devices that combine our original material and circuit design technologies such as LTCC and FBAR are under development for multi-band wireless communication.
UBE GROUP PROFILE

Group Vision

Business Highlights

Group Activities

Ceramics
UBE’s silicon nitride powder, a ceramic material, is a global standard. As a multi-purpose powder that can meet the demands of individual users, its features are employed to serve an increasingly diverse range of applications from high quality structural materials to specialty materials. Application examples include precision machinery parts, automotive parts such as glow plugs, aircraft parts, and semiconductor and IT parts. The Company’s silicon carbide ceramic fiber, Tyranno Fiber®, is utilized in many areas from the aerospace industry to general industrial applications such as heat resisting filters, employing its excellent heat resistance as well as its feature for transmission and absorption of electromagnetic waves. We have recently been successful in developing the TSA grade that has ultimate heat resistance capable of withstanding up to 2000°C. Aircraft manufacturers all over the world are accelerating development of composites using this fiber, for applications such as engine parts.

Gas Separation Membranes
Separation membranes were developed to make use of polyimide’s excellent gas separation characteristics. Separation membranes incorporating polyimide hollow fibers have long been used for various applications in the oil and gas industries, with one of its first applications being hydrogen recovery. Slight adjustments to the chemical structure of the polyimide allow performance to be tailored to match the characteristics of diverse gases, opening up new applications. Membrane performance in industrial applications such as the separation of nitrogen (oxygen) and moisture from air, separation of carbon dioxide gas, and the removal of water from alcohol has earned customer trust and acceptance. We have recently created new applications for nitrogen separation membranes by applying this technology in automobile tire filling and leak-free soldering. Demand is growing significantly, notably in explosion prevention applications. More recently, separation membranes have been attracting attention in water separation for bioethanol, a fuel widely anticipated to become a popular alternative to gasoline.

Fine Chemicals
In the fine chemicals field, a wide variety of products are manufactured for use in fragrances, paints, coatings, resins, and electronic components, among others. We are the sole domestic supplier of many specialty chemicals such as caleehol, 1,6-hexanediol, dodecanedioic acid, and DMC (dimethyl carbonate). These products are used as feedstock to produce goods that meet contemporary needs, such as environmentally friendly water-based paints, powder coatings, synthetic leathers, and synthetic fragrances. One clear case is the “marine” fragrance Heliofresh®. Using caleehol, this is the world’s first complete chemical synthesis of a fragrance that had only been produced from natural ingredients extracted from trees growing in tropical forests. Another fast growing product is methylhydroxyacetone (MEKO), available for wide applications centering on anti-skinning agents for liquid paints.

Demand for fine chemical products is global. In addition to our key plant, the Ube Chemical Factory, a group company based in Spain, Ube Chemical Europe S.A. also produces 1,6-hexanediol, a raw material for polyurethane and paint raw materials, and its derivatives, PCD (polycarbonate diol) and 1,5-pentanediol. UBE is also the sole manufacturer in Japan of DMC, one of the proudest achievements of C1 chemicals using carbon monoxide as raw material. New markets are currently being explored for DMC such as methylation agents that are friendly to the environment and human health, and solvents that are low in toxicity and high in safety. Downstream areas are also being aggressively developed through derivatives such as PCO: a raw material for high-grade polyurethane, olefine compounds for low-toxic, high-performance ultra-violet and heat-hardening resins that can substitute for epoxy, and beta-ketoesters for pharmaceutical active ingredients and intermediates.

Pharmaceuticals
Pharmaceuticals are anticipated to be a high growth business within UBE’s chemical sector. In the field of drug discovery that has the goal of creating novel drugs, three proprietary drugs have been conceived through joint R&D efforts with pharmaceutical firms. Talion®, an anti-allergy agent, Calblock®, an antihypertensive agent, and Effient™, an antiplatelet drug, are now being marketed overseas.

In addition, we have won the strong trust of domestic and overseas pharmaceutical companies by providing them with stable supplies of several dozen varieties of active ingredients and intermediates, including anti-inflammatory, antibacterial, and antihypertensive agents. Our pharmaceuticals are all manufactured under strict production control and quality assurance systems, which comply with the current Good Manufacturing Practices of the U.S. Food and Drug Administration and other regulations established by the authorities of Japan, the United States, and Europe.

UBE Chemical Europe S.A.
UBE Chemical Europe S.A. PCD plant
UBE Chemical Europe S.A.
The Ube Chemical Europe S.A. 1,6-hexanediol plant is located in Castellon of the Valencia region in Spain.

Pharmaceuticals
High growth is anticipated in the pharmaceuticals business, which is contributing to human well-being through the development of new, unique pharmaceuticals based on our proprietary drug discovery technology.
Cement & Construction Materials

The UBE Group always keeps its pipeline full to meet diversified needs for high-grade products in the civil engineering and construction industries. The Group’s rich lineup of building materials and cement has demonstrated superior performance and gained trust within industry circles.

Cement & Ready-mixed Concrete

Cement is fundamental to modern construction, and by extension to the society we live in. As today’s communities grow increasingly aware of environmental issues, excellent environmental performance is becoming one of the features expected of cement. All of UBE’s three cement plants-two in Yamaguchi Prefecture and one in Fukuoka Prefecture—are fully certified under the ISO 9001 quality control standard and the ISO 14001 environmental standard. The Company’s manufacturing philosophy states, “We clearly recognize our corporate social responsibility to improve the regional living environment and vigorously take up the tasks of environmental preservation, to build a community that is pleasant to live in and supportive of human development.” Each plant works hard to make use of various waste materials and employ safe and stable waste recycling technology, contributing to the creation of a recycling society. These efforts, along with the uncompromising quality of our cement, underline the great store of trust that UBE enjoys.

UBE’s Group has undertaken two joint ventures with Mitsubishi Materials Corporation to provide excellence in sales, distribution, quality assurance, and product development. Ube Mitsubishi Cement Research Institute and Ube-Mitsubishi Cement Corporation are generating outstanding accomplishments through the integration of the two companies’ strengths. A rich lineup of products that answer a diversity of user needs are steadily provided to our customers through the nationwide service network of Ube-Mitsubishi Cement Corporation. In its overseas ventures, in order to meet the increasingly strong demand for high-quality cement in China, UBE has established Nantong Ube Concrete Ltd. in the city of Nantong in China’s JiangSu province to develop its business in ready-mixed concrete.

Building Materials

To meet the diversifying needs of the construction industry, UBE is continuously developing new products such as roofing, walling, and flooring materials to fortify its position as a comprehensive manufacturer of building materials. UBE makes use of its well-developed service network integrating production and transit sites in the major regions, to reliably supply its self-leveling materials, which hold the top market share for floor underlay materials. UBE’s extensive lineup of self-leveling material products meets a diverse range of industrial needs. In addition to Quick Ceramic Flow® and SL Flow®, the Company produces Finish Flow®, a fast-curing finishing product; Veranda Flow®, a slip-resistant leveling material and Upper Surface Leveler, a product for leveling the floorings and foundations of residential housing. Also, UBE offers a wide selection of mortar products, such as the non-shrink grout mortar named U-Grout, and U-Mix justable leveling material; and Upper Surface Leveler, a product for leveling the footings and foundations of residential housing. Also, UBE offers a wide selection of mortar products, such as the non-shrink grout mortar named U-Grout, and U-Mix justable leveling material; and Upper Surface Leveler, a product for leveling the footings and foundations of residential housing.

Maltrich Industry Association, an association comprising over 200 waterproofing contractors nationwide. In addition, Aquashutter®, a polymer cement waterproofing paint that was developed by the comprehensive technology as a leading manufacturer of cement, enjoys a high market reputation. UBE Partile also enjoys stable demand as a lightweight material with outstanding sound absorption, fireproof performance and heat insulating characteristics, and is used for greenery work and housing construction boards. In addition, our group company, Ube Board Co., Ltd. manufactures and sells UB Board, a ceramic exterior material. Comagated State Ra, a non-flammable construction material for plant warehouses; and Network Floor, a floor wiring system; as well as materials such as Woodcrete® EXIN® a nonflammable ceramic artificial wood material for interior and exterior fixtures, and Yasashii Kabe®, a humidity controlling interior material made primarily of diatomite that also excels in odor removal and absorption of volatile organic compounds.

Specialty Inorganic Materials

The UBE Group handles a wide range of specialty inorganic materials. UBE is engaged in high purity silicon nitride and the super heat-resistant TYRANNO Fiber; the R&D Headquarters is working on TYRANNOHEX, an extremely tough, highly heat-resistant ceramic, as well as photocatalytic fibers that have excellent environment purification features, group companies Ube Material Industries, Ltd. supplies high purity ceramic powder, and Ube Nitto Kasai Co., Ltd. supplies spherical silica particles.

Calcium & Magnesia

Other than limestone for cement, ready-mixed concrete, and steel production, and calcium carbonate for flue-gas desulphurization, Ube Material Industries, Ltd., a group company, supplies quick lime for steel production; hydrated lime for soil stabilization; Calbreed®, a highly reactive hydrated lime used for the removal treatment of acid gas in waste incinerators; and magnesia clinker, a refractory material. Furthermore, CS, an ultra-high purity superfine calcium carbonate, has been in the limelight in recent years as material that can improve the properties of multi-layered ceramic capacitors. Fine materials such as a vapor phase magnesium oxide for the protective layer of plasma displays and calcium additives for foods are also growing significantly.

UBE GROUP PROFILE

UBE Cement Factory (Ube City, Yamaguchi)
This flagship factory has a long history. In recent years, a new Girls and Boys’ School of the arts; a facility to achieve high production efficiency.

Ice Cement Factory (Niwa City, Yamaguchi)
The factory is adjacent to one of the largest limestone quarries in Japan and ships products to the seaside Ube facility through a private road.

Kambe Cement Factory (Ube City, Yamaguchi)
The seaside factory facing the Sea of Suo is connected to Mitsubishi Materials’ Higashitani Quarry via a conveyer system.

UBE Materials Co., Ltd. (Ube City, Yamaguchi)
Manufactures calcium and magnesia-related products using limestone and seawater as the key raw materials.

Nantong Ube Concrete Ltd. (China)
Produces and sells ready-mixed concrete in China.
Machinery & Metal Products

The value of UBE brand products has been recognized globally due to their high reliability backed by the state-of-the-art technologies. These products include die-casting machines, injection molding machines, and extrusion presses, which enjoy a high reputation both in Japan and abroad.

Molding Machines

Products in the machinery business are manufactured and sold by the group companies, lead by Ube Machinery Corporation Ltd. In the core business of plastic injection molding machines and metal molding machines, such as die-casting machines and extrusion presses, the company has, in recent years, been launching a succession of high-performance, next-generation molding machines. In the realm of all-electric injection molding machines, which are now the mainstream in injection molding, Ube Machinery offers a line-up of machines with clamping forces from between 6,500KN to the world’s largest level of 30,000KN, constantly maintaining its leading presence in the field of large-sized machinery. Moreover, these machines are attracting high interest by incorporating UBE’s original molding technology such as the DIEPREST® molding process, which is capable of molding plastics and skin inserts together with high precision, and the Cav-Change® molding process, which makes high-performance and high-quality composite molding of different materials possible. For die-casting machines in the metal molding machine business, the company has developed and launched a new series of die-casting machines with a toggle system and hybrid die-casting machines, which have significantly improved injection performance and energy-saving performance. An original vertical machine (squeeze casting machine) capable of producing a quality high enough to compete with forged products has also won kudos, particularly among automakers. UBE also holds the world’s top share of the market for extrusion presses. The NPC-SS Var. III series, which excels in space-saving and energy-saving performances, was recently launched and enjoys a high reputation.

UBE Machinery Corporation Ltd. integrates operations with Ube Techno Eng. Co., Ltd., the company handling service and maintenance, Ube Machinery Inc. in North America, and Ube Machinery (Shanghai), Limited in China, with the four companies working as one to meet rising overseas demand.

Global activities are also underway with the establishment of local subsidiaries in Bangkok, Thailand, and Delhi, India. These companies serve as centers for sales and services in the emerging markets of Asia.

Industrial Machinery and Bridge & Steel Structures

There is also a substantial variety of industrial machinery other than molding machines. Recent products that have been well received include an air floating conveyor that transports materials such as coal, grains, and wood chips without generating dust; a vertical roller mill with integral frequency control, which can handle ultra-fine pulverization and its diversity of organic materials and their special applications; and a Euro-foil designed to store a range of bulk materials, such as sticky gypsum, with improved stacking efficiency. UBE also boasts a wealth of component technology and a wide variety of ceramic industry-related products such as kilns. In the bridge and steel structures business, evolving upon technology used in construction of Japan’s largest steel truss bridge, the Kosan-Ohashi Bridge, UBE’s list of accomplishments in other large-scale bridge construction projects, such as the Tokyo Bay Aqua-line, is growing. In addition to providing machine servicing, Ube Techno Eng. Co., Ltd. also manufactures small crushers and environment-related equipment. Differentiated technology is also welded for business developments by group companies such as Fukushima, Ltd., engaging in machinery for ships; Ube Steel Co., Ltd., which handles castings and specialty billets; and T&E Electronics Co., Ltd., which deals in electric and electronic circuit boards.
Energy & Environment

Along with shouldering the energy infrastructure of the UBE Group through the coal business that ensures a stable supply of overseas coal and through electric power supply from our own power plant, the Company is moving ahead with new energy strategies in wholesale power and other businesses.

UBE’s environment business is helping to reduce environmental impact by promoting revolutionary waste recycling systems and adopting reusable biomass energy.

Coal

UBE was the first in Japan to import steaming coal. It imports and sells quality coal from around the world, including Australia, Indonesia, and China. The Company handles around 7 million metric tons of coal annually, including that for sale, storage, and use by the group companies. The Okinoyama Coal Center in Ube City has Japan’s largest-capacity coal storage yard and handles most of this coal, transporting it to users around the nation. Its services include blending and removing foreign matter. The Center is upgrading its port and storage facilities to accommodate larger vessels and to streamline coal acceptance.

Power

UBE maintains a 145,000-kW power plant in Ube City that has ensured stable supplies of electricity to the Company and group operations for many years. The Company drew on the technologies and expertise accumulated in these operations to construct a sophisticated 216,000-kW power plant in Ube City to commence the Independent Power Producer (IPP) business. The new plant began supplying power to Chugoku Electric Power Co., Inc., from March 2004 under a 15-year contract. The operations of the two plants are integrated. They receive coal used for fuel by conveyor from the Okinoyama Coal Center. UBE businesses pipe industrial water, ammonia, and other supplies to the plants. Both plants naturally take all possible steps to prevent pollution, including methods using flue gas desulfurization and denitrification facilities. Byproducts such as fly ash and desulfurized gypsum are shipped to UBE’s cement factories where they are utilized as raw materials for cement in our efforts to reduce environmental impact.

Environment

Drawing on the technologies and experience we have gained in constructing a variety of plants in Japan and around the world, UBE is actively promoting operations to protect the global environment. UBE’s technology for utilization of wastes has been broadly supported not only because it reduces manufacturing costs, but also for its contributions to reduction of carbon dioxide emissions, effective utilization of resources, prolonging the life of landfills and other environmental merits. It has led to the creation of a significant number of new technologies and businesses. Among these, the utilization of a diversity of wastes by the three cement factories of Ube, Isa and Kanda is winning kudos for recycling. Because cement kilns burn raw ingredients at high temperatures of 1,450°C, they can destroy large quantities of materials including those that cannot be handled by regular furnaces. Taking advantage of this feature, a wide diversity of waste materials such as fly ash, waste construction soil, combustion ash, and waste plastics are now actively received from within and outside the UBE Group to be used as part of the raw materials for cement or as fuel for the kiln. This is contributing to the establishment of a recycling-based society. Moreover, our proprietary dechlorination technology allows us to accept wastes with a high chlorine content, which had been difficult to treat through conventional processes. Notably, since the construction of a high-chlorine by-pass facility in the Kanda Cement Factory in fiscal 2005, which boasts the largest size and highest performance of any such facility in Japan, it has become possible for us to reuse wastes with even higher chlorine content such as urban refuse incineration ash generated from incinerators operated by the local governments. In fiscal 2008, our factories began accepting ash that the local authorities had, until then, been burying in landfills. This effort is in the line of its contributions to the purging, recycling, and extension of the life of landfills.

UBE Group Profile

UBE Group Business Highlights

Waste treatment facility for fuel use

High-chlorine by-pass facility

Biomass fuel facility (IPP power plant)

Chips made from crushed construction waste

1. Waste treatment facility for fuel use

2. High-chlorine by-pass facility

3. Biomass fuel facility (IPP power plant)

4. Chips made from crushed construction waste
Research & Development

UBE puts its major R&D resources into creating higher value-added, unique products based on differentiated chemistry such as pharmaceuticals and specialty products, which are at the leading edge of growing businesses in the 21st century. UBE is also actively seeking and promoting new technologies, such as applied nanotechnology, which will lead to new businesses in the future.

Creation of New Pharmaceuticals through Advanced Technology

Envisioned with the two missions of expanding and developing existing businesses and creating new businesses, UBE advances its research and development in line with the Company’s management strategy to drive forward its operations centered on the differentiated chemicals business.

High anticipations are especially held for the field of pharmaceuticals. Three proprietary drugs have been conceived through joint R&D efforts with pharmaceutical firms: Talan®, an antiallergy agent; Calibiock®, an antihypertensive agent; and Effient®, an antiplatelet drug. UBE has also achieved the deep trust of pharmaceutical companies both in Japan and abroad for outsourced drug manufacture. Moreover, steady progress is seen in clinical trials on a drug to treat glaucoma.

Research and Development on Specialty Products

Many of the operations in specialty products are positioned as strategic growth businesses. Therefore the field of specialty products is an extremely important area for research and development. The targeted areas for development include next generation base materials for electronic parts and circuit boards in the field of electronics and IT, environmentally friendly bio-based substances and solvent-free coating materials with low environmental load in the field of the environment, and high performance polyamide elastomers.

UBE is actively conducting research in these areas, drawing from the many years of experience in molecular structure control and nanotechnology to respond quickly to the diversified needs of the rapidly changing market.

For a Sustainable Society

Research and development is advanced in areas centersing on renewable energies, which will secure energy sources and ensure environmental preservation in our goal to make sustainable society a reality. These include the development of technology for the creation of solar cells, fuel cells, and other forms of energy, energy storage such as power storage devices for leveling the output of renewable energies; and energy saving devices typified by LED systems. In the solar cell field, development is progressing in components for dye-sensitized solar cells—highly anticipated to be the next generation solar cell—with special focus on achieving a balance of high efficiency and high durability of dyes, the key material. In the realm of power storage devices, UBE’s strong technology in polymer structure control is fully utilized in the development of materials.

Photocatalytic Fibers for Water Purification

Expections are laid on photocatalysis as an effective technology to protect the global environment. UBE’s photocatalytic fiber, created through our original concept to use this function in fibers, led to the creation of the innovative water purification system, Aquasolution®. As a purification system that uses photocatalytic fibers without any chemical agents, market developments are accelerating with an increasingly broad range of applications from elimination of Legionella in bath water and precision cleansing of electronic parts, to removal of odors from drinking water. UBE has future plans to open up a large market by developing this into an environmental purification system that would include air purification, developing this into an environmental purification system that would include air purification.

Practical Use of Ultra-high Heat Resistance Materials

UBE is steadily advancing toward fulfilling its goal of putting structural ceramic materials into practical use, which are much anticipated as key materials for ultra-high heat resistant applications. TYRANNO® Fiber, an ultra-high heat-resistant ceramic, is widely used in composite materials for aerospace applications and is now selling briskly as a successful specialty product. (See Functional Materials - Ceramics) UBE is also leveraging the outstanding ultra-high heat resistance properties of TYRANNOHEX®, a new application of TYRANNO Fiber, and MGC (Melt Growth Composite), which combines the advantages of metals and ceramics, with the aim to extend applications to include turbine blades for aircraft engine and high-efficiency gas turbines for power generation.

Artificial Vascular Graft

Enjoys High Reputation

UBE regards commitment to nanotechnology, which is attracting attention as a key technology in the 21st century, to be one of its most important research areas. The technology, which makes it possible to control material structure on an atomic or molecular scale, and produce unique properties, will not only allow UBE to create totally new materials but also allow it to revolutionize the performance and manufacturing methods of existing materials.

UBE has already developed products that show significant features achieved by structure controlled on a nanometer scale, such as NCH Polypamide (a polymer and monomeric-ligand-(clay) composite material), gas separation membranes, and MGC (see Ultra High Heat Resistance Materials). In order to develop more innovative nano-materials, UBE is also promoting an integrated research and development activity that removes the barriers separating fields such as organic synthesis, inorganic materials, polymers, and polymerization catalysts.

UBE’s advanced basic materials in the pipeline include specialty membranes that help enhance the performance of distributed power sources; highly active catalysts that promise production efficiency and low environmental impacts for industrial products; and specialty materials with ultra-thin layered structures formed by the self-assembly nature of molecules. These materials are expected to be applied for practical use in the near future, creating totally new businesses and products.

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**UBE GROUP PROFILE**

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**The Origin of CSR Activities**

“Living and prospering together.” This was the corporate philosophy advocated by our first president, Mr. Sukesaku Watanabe, who dedicated his life to the development of the company and the community since the company’s foundation in 1887. This philosophy is the origin of the UBE Group’s CSR activities, and is a legacy that continues to live on today, over a century since the company’s establishment.

Even before the concept of “corporate social responsibility” had spread throughout society, UBE’s business practices have aimed to enrich people’s lives. Along with expanding business by consistently engaging in manufacturing that fully utilizes innovative technologies, the Company has answered the requests and expectations of the community by also focusing on the development of social infrastructure and activities contributing to society.

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**Advancing the Spirit of “Living and Prospering Together” to Become “Global Coexistence”**

Since its foundation, the UBE Group has been committed to its corporate philosophy of “living and prospering together.”

While considering business development and community prosperity to be coaxial, the Group has strived for “harmonious coexistence” with all stakeholders. Now, this philosophy has been developed to beyond the community to encompass the world, namely, to commit to “global coexistence” through business practices that aim for sustainable development on a global scale.

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**Deepening CSR Activities**

Spurred by the misconduct of large global enterprises, which came to light during the 21st century, the UBE Group society has come to strongly demand that companies practice corporate social responsibility (CSR). In recent years, problems concerning the economy, environment, and society are becoming globalized, and the social responsibilities that corporations must bear are increasing in importance.

The UBE Group, aiming for “co-existence” with all our stakeholders, made up of shareholders, investors, customers, business partners, employees, and the local community, is pursuing deeper CSR activities. Measures to curb global warming and other activities to protect the environment are particularly important challenges for management to address.

To this end, initiatives are advanced for sustainable development on a global scale through collaboration between our business centers in the world such as Thailand and Spain. It is within such a situation that the UBE Group is advancing its spirit of “living and prospering together with the community” to become one of “global coexistence.” Along with pursuing sustainable development on a global scale, the companies of the UBE Group will work as one to make broad contributions to society so that we can gain the even greater trust of all stakeholders.

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**Initiatives for Preservation of the Environment**

The manufacturing industry holds the role of supporting people’s lives by providing materials, products, and technology. However, manufacturing requires a great deal of human and natural resources, and environmental burdens are consumed during the various processes of production and use. This society demands that manufacturers reduce the emissions of greenhouse gases, such as carbon dioxide (CO2) and take measures to prevent the risk of environmental pollution from chemical substances.

As a member of the manufacturing industry, the UBE Group feels strongly about environmental preservation and is focusing its energies on the development of innovative products and technology that are friendly to the planet. The concept of responsible care is incorporated in all business fields and we are engaged in policies that place priority on matters such as the reduction of greenhouse gas emissions, measures for waste, and reduction of chemical substance emissions.

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**Measures for Wastes**

The UBE Group is promoting the effective use of wastes generated in each field of business. Moreover, in the cement and construction materials business, wastes are actively used as fuel sources in cement factories, accelerating recycling efforts. Specifically, approximately 34 million metric tons of old tire, scrap plastic, coal ash, sewage sludge, construction soil, and other waste materials and by-products are received annually and are reused to augment fuel sources. This not only helps conserve natural resources, but secondary waste is also not generated since the cinder is also used as a raw material for cement. In this way, cement factories contribute greatly to the establishment of a resource recycling society.

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**Reduction of Greenhouse Gases**

In order to reduce greenhouse gas emissions, the UBE Group is engaged in shifting sources of fuel to improve energy efficiency and is promoting the use of wood biomass. As a result of such efforts, compared to the target set forth by the Kyoto Protocol for Japan to reduce greenhouse gas emissions from 2008 to 2012 by 6 percent from 1990 levels, the UBE Group as a whole, which had raised the aim of reducing CO2 emissions by 12 percent, was able to achieve this target ahead of schedule in fiscal 2008.

A new initiative, we are promoting a CDM project in collaboration with Mitsubishi Corporation at Thai Caprotact Public Company Limited, with the aim of inverting the “reduction of greenhouse gas emissions through catalytic decomposition,” a first for Thailand. UBE will continue efforts to cut greenhouse gas emissions and contribute to preservation of the global environment.

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**Reducing Emission of Chemical Substances**

As one facet of reducing the emission of chemical substances in order to protect the environment, the UBE Group is promoting the reduction of chemical substances designated in the Pollutant Review and Transfer Register (PRTR). In this system, the amount of chemical substances released into the environment and the amount of wastes transferred are calculated annually and the data is registered with the relevant authorities. Based on the data, the UBE Group draws up plans to reduce emissions of chemical substances and strives to reduce environmental risks through the establishment of recovery facilities and separation facilities for self-designated chemical substances.

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