

KOBELCO

Company Profile

kobelco eco-solutions

*We will contribute to society as an
“Environmental Solutions Enterprise in sync with the Times”
by offering technology useful to both global environmental
conservation and an improving living environment.*

◆ Water Treatment

» Water Treatment » Biomass

- ◆ City water and sewage treatment plant
 - ◆ Sludge treatment / Sludge volume reduction equipment
 - ◆ Sludge incineration / Melting / Recycling system
 - ◆ Wastewater Treatment Facilities
 - ◆ Industrial water processing system
 - ◆ Water treatment system for liquid crystals and semiconductors
 - ◆ Pure water / Ultrapure water production equipment
 - ◆ Leachate treatment system
 - ◆ Seawater desalination system
- ◆ Biogas Upgrading System
 - ◆ Biogas technology for the injection into the natural gas grid

» Cooling Tower

- ◆ Cooling tower for district heating and cooling
- ◆ Super-low-noise cooling tower



◆ Waste Product Treatment

» Waste Treatment and Recycling

- ◆ Fluidized Bed Gasification and Melting Furnace
- ◆ Grate Type Incinerator
- ◆ Recycling Facilities
- ◆ Plasma Melting Furnace
- ◆ Fluidized-bed furnace

» Detoxification of PCBs

- ◆ Sodium Pulverulent Process “SP Process”
- ◆ Solvent Extraction and Decomposition Process “SED Process”
- ◆ Plasma Melting Technology for PCB-contaminated Waste



◆ Technological Development

» Technological Development

- ◆ Water Treatment / Sludge Treatment / Recycling
- ◆ Cooling Tower
- ◆ Waste Treatment and Recycling
- ◆ Environmental Restoration and Recycling
- ◆ Process Equipment

» Environmental Analysis Service

- ◆ Potable water and sewage sludge
- ◆ Wastewater from factories, research centers, etc.
- ◆ Industrial waste (PCB, metals, organics, etc.)

◆ Process Equipment

» Process Equipment for Chemical and Food Industries, etc.

- ◆ Glasslined Reactor
- ◆ Polymerizer / Reactor
- ◆ Evaporator
- ◆ Mixer / Dryer
- ◆ High-purity Hydrogen / Oxygen Generator

Water Treatment (Water Purification)

Safe and delicious water is made available by our advanced treatment technology for city water.

Natural water purified by scientific methods. Water purification plant

Basic concept of water treatment is to replace natural churning, precipitation and filtering processes with mechanical processes. We can propose optimal system plans with proper design, taking into consideration original water quality, geography, environment and population of the water supply area. We can meet the requirements for advanced technology to produce safer and tastier water.



Water purification plant

Membrane system for water purification (MF and UF Membrane)

The system can meet the requirements to handle eutrophication and to treat cryptosporidium-infected water using our advanced water-purification and membrane-filtration technology, which was developed to replace conventional flocculation sedimentation and sand filtration. The system can remove not only suspensions but also almost 100% of bacteria to provide stable purified water.



Ultra membrane filtration system

Rapid Filtration Equipment Open Siphon Filter

The Open Siphon Filter is a gravity type open filtration facility that uses a siphon mechanism. Easy switching between filtration and back wash processes is achieved by utilizing a unique back wash storage tank and siphon. In recent years not only have we installed conventional rapid filtration equipment, but have also introduced high-speed filtration equipment, biological waste treatment equipment, and activated carbon filtration equipment in moves towards more advanced processing methods. Open type filtration facilitates easy cleaning surveillance, allowing for safe and certain filtration. Introduction of a siphon type automatic water leveling system alleviates the need for complex operational instruments, enabling completely automatic operation.



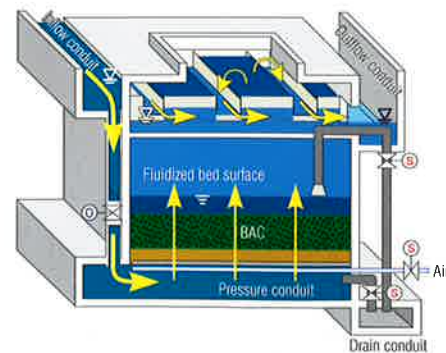
Open Siphon Filter

Upper counterflow type biological contact filter U-BCF

Malodorous components and ammonium nitrogen contained in the water are removed with a granular activated carbon filter, to provide delicious water.



Upper counterflow type biological contact filter, U-BCF



Water Treatment (Sewage)

We support comfortable living with our advanced technology.

Our abundant track record creates high reliability Sewage treatment plant

Our wide range of technology can propose various solutions such as efficient removal of COD, removal of nitrogen or phosphate to solve the problem of eutrophication, desalination of recirculated water, energy savings etc. We have designed and supplied many sewage treatment plants and advanced wastewater treatment plants to prefectures, cities, towns, villages and housing complexes nationwide and have contributed to the improvement of community life as a reliable plant supplier.



Sewage treatment plant (photo provided by the Kobe City Construction Bureau)

Non-metallic sludge-gathering system

All the parts which are in contact with liquid are made of high-quality plastic materials. In many sewage disposal plants, long life and maintenance-free circumstances in a corrosive environment are realized.



Non-metallic sludge-gathering system

Hyperboloid mixer PABIO Mix

Efficient mixing in the tank is made possible using a specially shaped Hyperboloid mixer. As mixing near the bottom of the tank is performed by low-speed rotation, considerable energy savings are realized with minimum energy consumption. The design is very simple and the mixer body is light since the material is FRP.



PABIO Mix

Membrane Bio-reactor MBR

A Membrane Bio-reactor is one type of activated sludge system that uses membrane units submerged in reaction tanks to separate liquids and solids, something that has always been done in final sedimentation tanks. Using MBR in the sewage treatment process enables us to:

- eliminate microscopic particles and bacteria,
- reuse treated water, and
- conserve space by eliminating the need for sedimentation tanks required for normal sewage treatment processes.



Membrane Bio-reactor

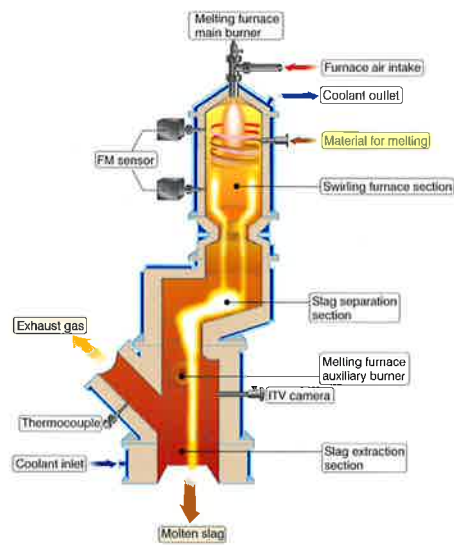
Water Treatment (Sludge)

It contributes to reducing and recycling of sewage sludge.

The spread of sewage systems throughout Japan has caused a national demand for sewage treatment. Along with offering a safe and hygienic water environment, Kobelco Eco-Solutions contributes to the development of a recycling orientated society by actively engaging in volume reduction and recycling of raw sludge that utilizes the latest technology including our steadfast incinerating and melting know-how.

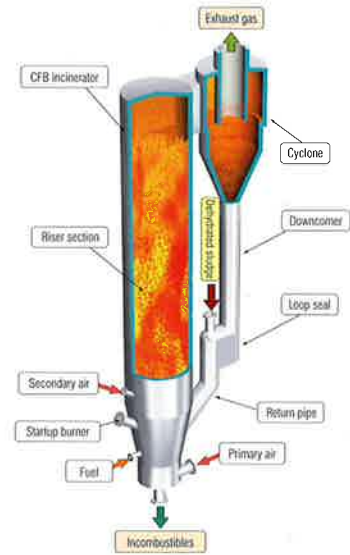
Swirling Flow Ash Melting Furnace System

This system incinerates raw sludge and super heats the generated ash to produce molten slag. The facilities have outstanding operational stability and economical efficiency through utilization of a swirling flow ash melting furnace. The swirling furnace boasts high slag production ratios and is easily maintained due to its compact design.



Circulating Fluidized Bed Sewage Sludge Incineration Facility

Problems in sludge incineration to accommodate various kinds of sludge were solved and a wider sludge-conduction operation range than BFC type became possible. Cleaning of exhaust gas, energy conservation, and minimization of installation space can be achieved. Operation management is simple because stable combustion is realized by adopting our original method of loop seal sludge feeding.



Next-Generation Sludge Incinerator Advanced Two-stage Incinerator

Sludge incinerators emit carbon dioxide, nitrous oxide and other greenhouse gases, and people have been longing for some way to reduce this burden on the environment.

We used our plentiful experience gained over 30-plus years of sewage sludge incineration and our superior plant engineering capabilities to develop an "Advanced Two-Stage Incinerator," a next-generation sludge incinerator that both conserves energy and cuts down on greenhouse gases. Machines that use this technology in our incineration and melting systems are currently in operation.



Advanced Two-stage Incinerator

Gravity Belt Thickener

Increasing volumes of sludge have been an issue in sewage treatment. Our "Gravity Belt Thickener" is a sewage sludge treatment solution designed to reduce sludge volume through thickening.

An increasing number of treatment plants are employing our Gravity Belt Thickener due to its high sludge concentration performance, the ability to handle large volumes of sludge, and a low lifecycle cost realized by easy maintenance.

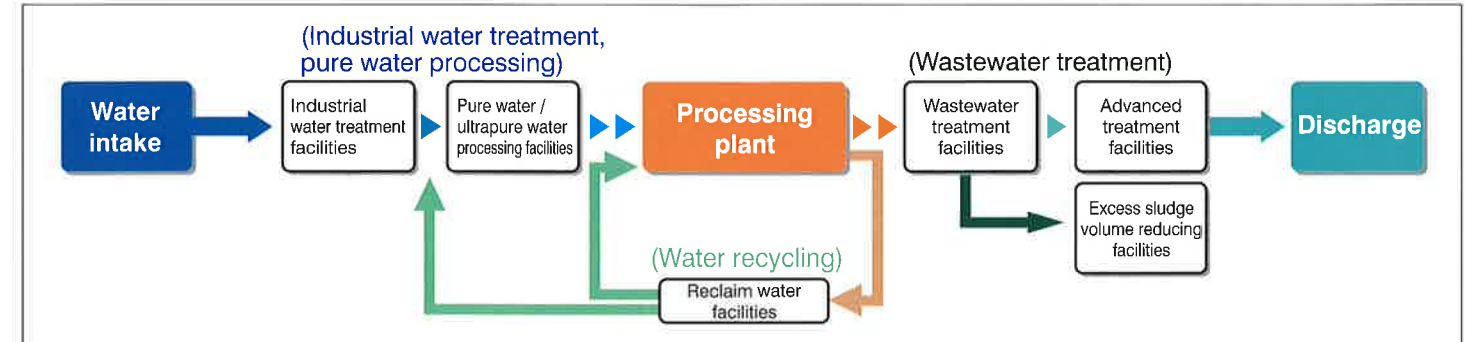


Gravity Belt Thickener

Water Treatment (Industrial Water, Pure Water, Ultrapure Water, Wastewater)

We fulfill the industrial requirements for water treatment to protect the global environment.

Kobelco is a comprehensive maker of industrial water processing facilities, answering a diverse range of customer needs with a unique lineup of products that satisfies everything from ultrapure water processing and industrial water, to wastewater treatment and water recycling.



Our solutions to the requirements for more advanced water.

Industrial water treatment / pure water and ultrapure water production facilities

We offer the perfect system for each application with a solid track record of efficient industrial water treatment facilities for purification, ion exchange, and pure water / ultrapure water processing facilities for membrane separation.

- Ultrapure water system for electronic equipment such as LCDs
- Functional water processing system for LC cleaning
- Industrial water treatment system for steel, chemical, and food applications
- Feedwater / condensation system for power generation
- Membrane separation system
- Electro deionization, ion exchange facilities



Pure Water System



Membrane Separation System

Our solutions to for reusing water and precious materials

Reclaim Water Facilities

We propose optimal closed system based on our ample track records and engineering experiences in BCF (Bio-Chemical Filtration), membrane treatment, organic matter oxidization treatment and electrochemical treatment.

- Waste water recovery system for liquid crystal production line
- Drainage and chemical recovery system
UF cube, Lot Sepp, etc.
- Our original membrane treatment system
- Precious materials recovery system

Supplying water for the customer Water Service

We install our facilities at the customer's factory, Supplying pure water and ultrapure water through independent operation and maintenance. The load placed on customers is significantly reduced.



Reclaim Water Facilities

Supporting stable steel plant operation Water Treatment for Steel Plants

Our diverse experience and solid track record supports water treatment systems unique to steel plants.

- Direct and indirect circulating water treatment systems
- Dust separation wastewater treatment system
- Comprehensive wastewater treatment system
- Acid wastewater treatment system
- Coke wastewater treatment system

Realization of high-efficiency, low-cost wastewater treatment
Wastewater Treatment Facilities

We offer high-efficiency, low-cost treatment system ready to meet organic wastewater, inorganic wastewater, and individual restrictions in steel, chemical, food, and other industries.

- PANBIC-H System (Fluidized bed-type high load anaerobic wastewater treatment equipment)
This high load anaerobic wastewater treatment equipment, which detaches the gas/solid/liquid separation tank from the reactor, allows for the effective utilization of methane gas.
- Pabio Mover (Fluidized bed-type aerobic organic wastewater treatment equipment)
High load aerobic organic treatment equipment incorporating specialized plastic substrate.
- PABIO DENI (Fluidized Bed Nitrogen Removal Process)
High-load capacity nitrogen removal process utilizing a specially shaped plastic carrier.
- Floation Equipment
Efficiently removes and recovers suspended matter and scum from waste water with minute bubbles.

Advanced treatment of COD, nitrogen, phosphorus and fluorine are achieved
Advanced treatment systems

We offer high efficiency treatment systems that meet strict water quality regulations for advanced treatment facilities that remove COD, organics, hazardous substances, and color.

- Multiactos (Continuous multistage fluidized bed-type activated carbon adsorption equipment)
Characterized by its compact design and low cost.
- Super Thickener (High-speed Coagulating Sedimentation Device)
Efficiently separates solid-liquid utilizing easily settling floc structure
- Deflourination System
A system that allows for simultaneous fluorine removal/recovery using chemical treatment.



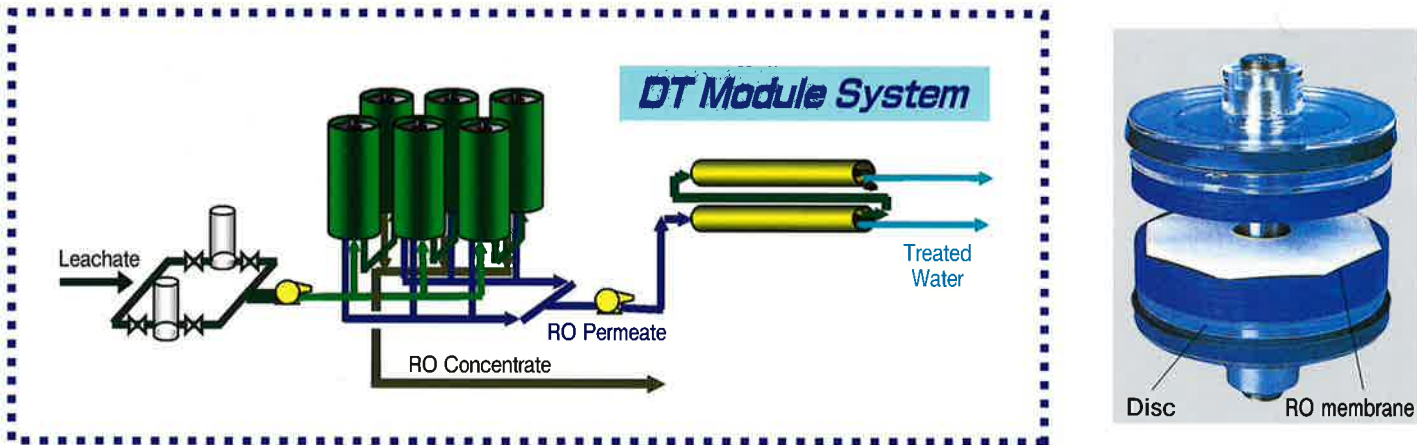
Continuous multistage fluidized bed-type activated carbon adsorption equipment (Multiactos)

Water Treatment (Leachate Treatment)

Stable Treatment of even the highly Polluted Waste Water

Leachate Treatment Equipment "DT Module System"

This superb system transforms leachate from the landfill site into safe crystal clear water utilizing RO membrane treatment used in seawater desalination and the production of ultrapure water for semiconductors. The system boasts low maintenance costs and is highly economical due to its compact design and simple treatment process. We use this advanced technology to contribute to the environmental conservation of the surrounding area through the safe and stable treatment of leachate discharged from the Landfill Site.



Water Treatment (Desalination)

Using desalination technology we have developed in order to meet a variety of needs in Japan and throughout the world.

Low Power Consumption Desalination System

We have many desalination techniques, and we have developed a new "Low Power Consumption Desalination System" to help us move toward becoming a low-carbon society. This system makes it possible to desalinate water while saving huge amounts of energy and greatly lowering carbon emissions and costs. It will play a role in drought strategies in Japan and throughout the world.



Demonstration plant for Low Power Consumption Desalination System

Mobile Water Purifier

The Mobile Water Purifier is a device that treats seawater, freshwater and mixed water and provides drinking water on the move. It can be used anywhere since it is capable of producing safe drinking water from rivers, lakes, ponds, the ocean and any other water source.

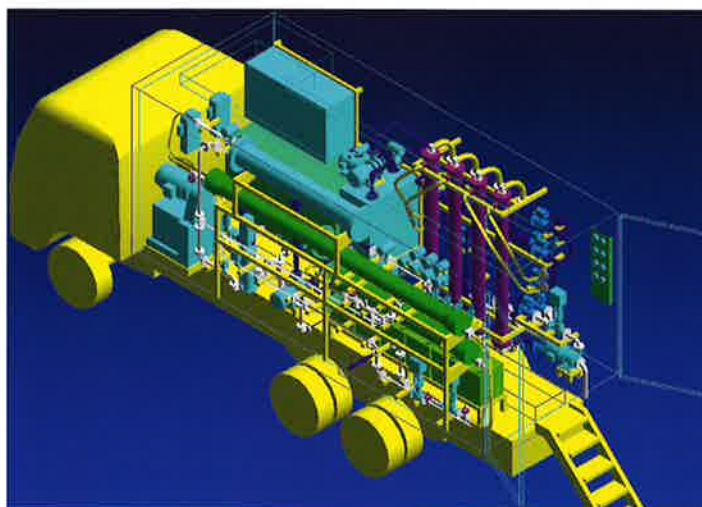


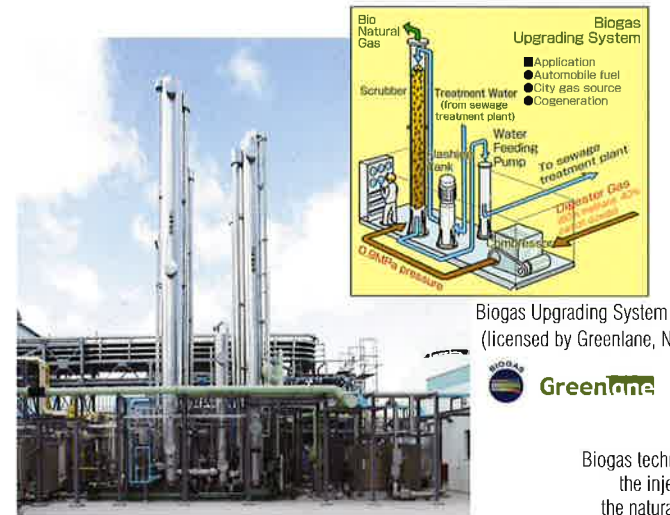
Image of Mobile Water Purifier

Biomass

We are working hard to live together with the environment, using our biotechnology.

Carbon Neutral Energy Biogas Upgrading System (licensed by Greenlane, NZ)

Our Biogas Upgrading System purifies digester gas generated during the treatment of sewage sludge to produce high purity gas equivalent to 12A city gas (97% or more methane). Our Biogas Upgrading System is characterized by its low running cost realized by the utilizing of effluent water from sewage treatment facilities, simple purification processes and equipment structure, economical and highly-efficient desulfurization, and the ability to remove siloxane.



Biogas technology for the injection into the natural gas grid

Technology tried for the first time in Japan to help create low-carbon, environment-friendly communities!

Biogas technology for the injection into the natural gas grid

We worked together with municipalities and gas companies to develop equipment that sends purified biogas directly to gas pipes to be used as utility gas. We will demonstrate the use of biogas, a resource that will never be exhausted as long as humans exist, as utility gas and contribute to the creation of a low-carbon, environment-friendly society.



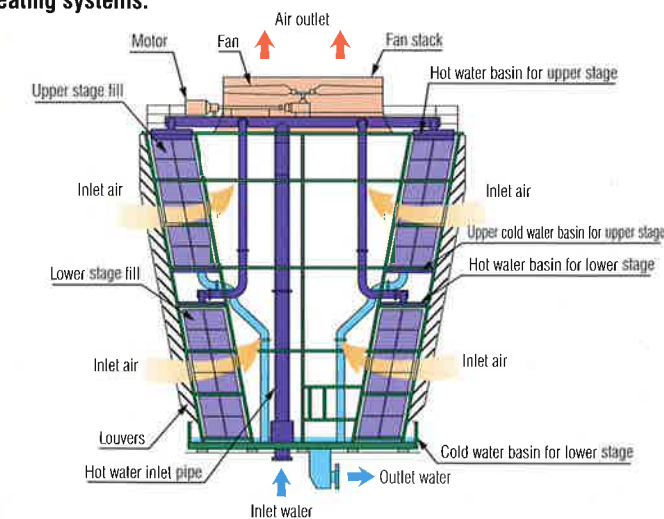
Cooling Tower

We are the biggest manufacturer of cooling towers, with a track record of 5000 or more units sold worldwide.

A cooling tower refrigerates cooling water from the air conditioning system in the building and factory and re-circulates it in the same way that human beings control their body functions properly by the perspiration. It contributes to the creation of a comfortable environment in a city by serving expanding industrial activities and central heating systems.

Heat Exchange Technology (Gas & Liquid)

In industries which require cooling water, such as the power, steel, and chemical industries, and for building and district heating and cooling, re-circulation use of cooling water by wet cooling towers is promoted. We continue to develop more compact and more efficient cooling towers through theoretical calculations, building a small pilot units in our research center, and actual heat exchange proof tests with full scale cooling towers.



Cooling towers for district heating and cooling



Super-low-noise cooling tower



Waste Treatment (Incinerator) and Recycling

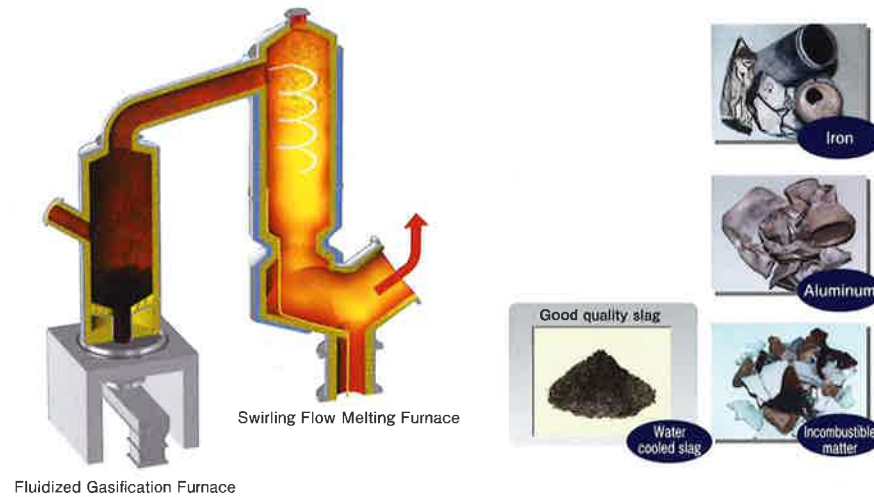
MSW (Municipal Solid Waste) Treatment Technology

The key to realizing a resource recycling orientated and low carbon society

Fluidized Bed Gasification and Melting Furnace

Our waste treatment facility "Fluidized Bed Gasification and Melting Furnace" is constantly evolving. Stable and continuous operational ability is the most important factor in alleviating the life cycle cost of facilities. Kobelco Eco-Solutions achieved a continuous operational record of 308 days (*1) with this furnace type, proving the facility's high reliability. The high quality molten slag generated is effectively utilized for road bottoming and other applications. The latest waste treatment technology is used to support a resource recycling orientated and low carbon society.

(*1) Fukui Prefecture View Clean Okuetsu (as of Dec. 2009)



New ideas breathing life into age-old techniques

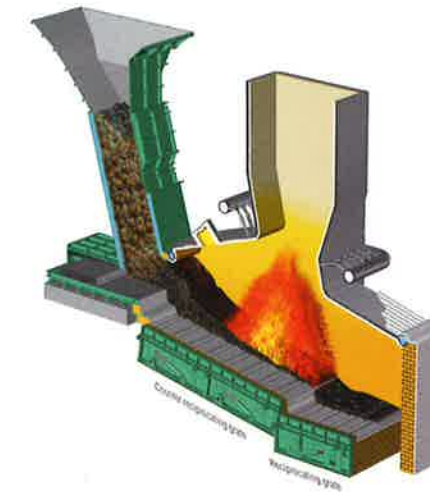
Grate Type Incineration

"Grate Type Incineration" is the oldest and most widespread domestically used waste treatment technique. Age-old techniques are constantly evolving to promote the realization of a resource recycling orientated and low carbon society.

For example, low excess air high temperature combustion technology.

Facility miniaturization allows for power reduction as well as overall improvements in energy saving and general efficiency.

We also achieve improved environmental performance by reducing repair and utilities costs through an overall cut in life cycle costs, promoting separation of toxic substances contained in exhaust gas, and by reducing exhaust gas volume.



Inside the furnace



Saitama Prefecture Kawagoe City Recycling Center Heat Recovery Facility



Kanagawa Prefecture Sagami City Minami Sanitation Plant



Ibaraki Prefecture Sashima Clean Center "Teraku"



Yamaguchi Prefecture Shimonoseki City Environment Division Okuyama factory



Okinawa Prefecture Iheyamara Clean Center



Plasma Melting Furnace Uppersaide

Encouraging recycling for a bright future

Recycling Facilities

Resource recovery activities vary according to the industry and culture of each region. Kobelco Eco-Solutions offers resource recovery and recycling processes specific to regional characteristics, constructing many recycling facilities equipped with a multitude of functions.

Not only we offer machine processing, but our facilities are designed to integrate into the local community, teaching the importance of recycling by encouraging residents to "look", "touch", and "enjoy" at our interactive facilities.

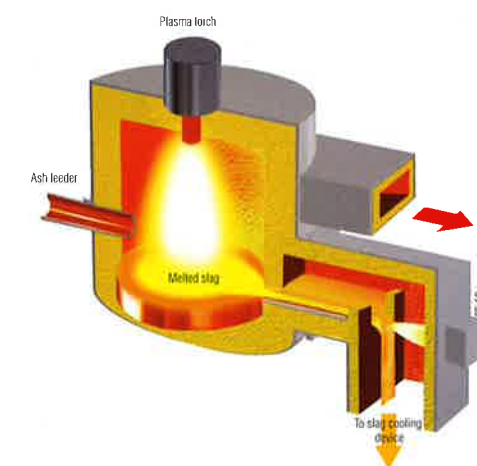


Contributing to a reduction in final disposal volume for a resource recycling orientated society

Plasma Melting Furnace

Our Plasma Melting Furnace contributes to a reduction in final disposal volume with a stable fly ash melting process. Utilizing a "non transfer type" plasma torch facilitates uniform heating within the melting furnace, realizing stable fly ash melting.

The plasma torch's output is easily adjusted allowing for stable treatment that can also handle changes in ash aspect and load fluctuations. Furthermore, we offer highly reliable facilities that can operate continuously for a maximum of around 150 days.



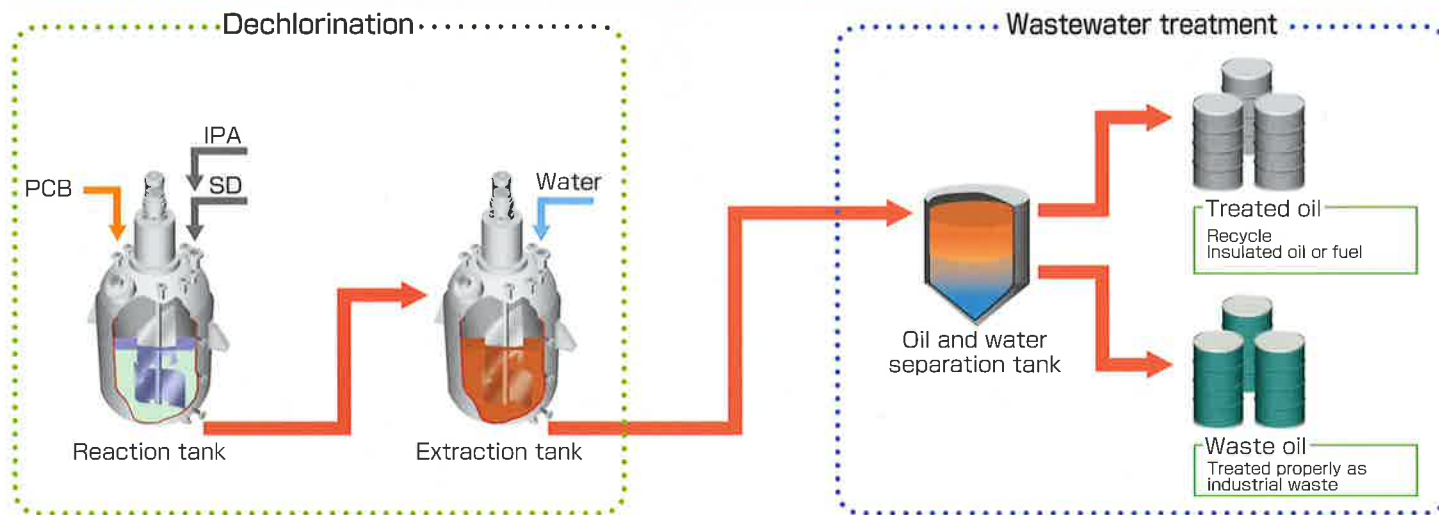
Plasma Torch

Detoxification of PCBs

Advanced and Reliable Technology

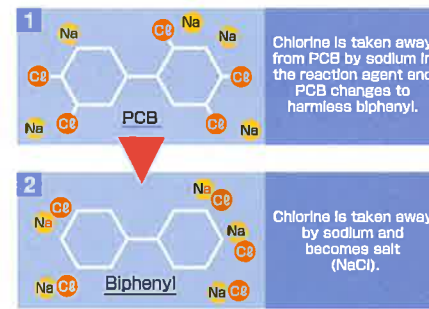
Sodium Pulverulent Process "SP Process"

Although widely used for industrial products and industrial applications in the past, polychlorinated biphenyl (PCB) has been deposited for more than 30 years in an untreated condition, even after its toxic effects on the human body became clear and its production was stopped, and no effective processing method has been developed. PCB detoxification system "SP process" removes chlorine from PCBs and detoxify PCBs by chemical reaction of sodium and PCB. The process is adopted by The Chugoku Electric Power Co., Inc Insulating Oil Recycling Center and Hokkaido PCB Waste Treatment Facility.



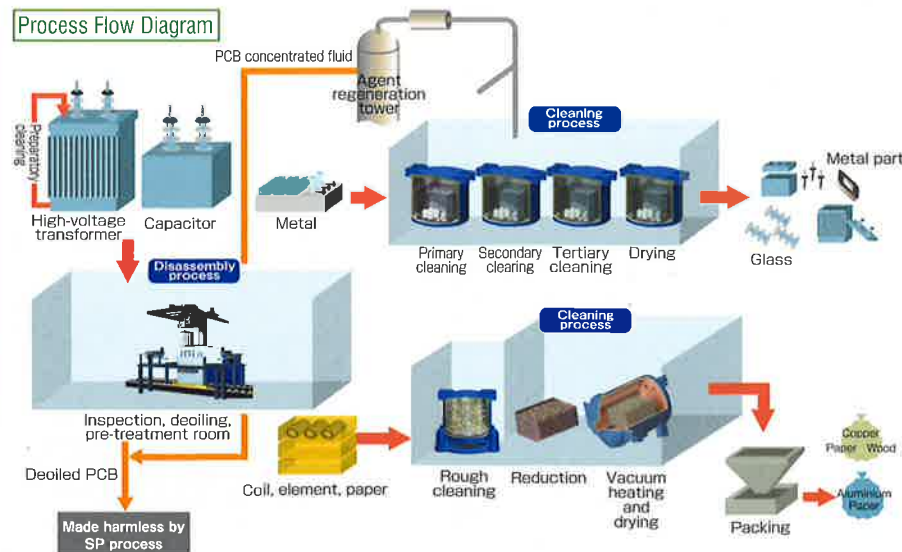
Sodium Dispersion (SD)

SD is a reactive agent in the SP process used to dechlorinate and detoxify PCBs. Fine-grained sodium particles react calmer with air or water than solid sodium as the sodium particles are constantly covered with oil. We have established SD production facilities at the Harima Plant and Muroran SD Production Plant to supply the PCB treatment process.



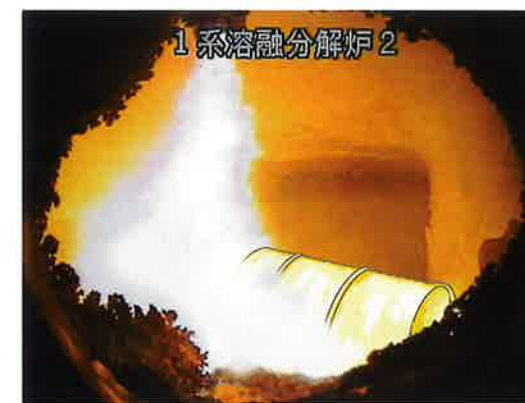
Solvent Extraction and Decomposition Process "SED Process"

PCBs are widely used for transformer and capacitor, etc. of electrical apparatus, and adhered to the cases and components of these products. The SED process is a pre-treatment technique that dismantles electrical apparatus, removes PCBs with solvent washing and heating drying under vacuum. Combination with the SP process completes an integrated treatment technology for handling electrical apparatus containing PCBs. The process is adopted by Toyota PCB Waste Treatment Facility and Hokkaido PCB Waste Treatment Facility.



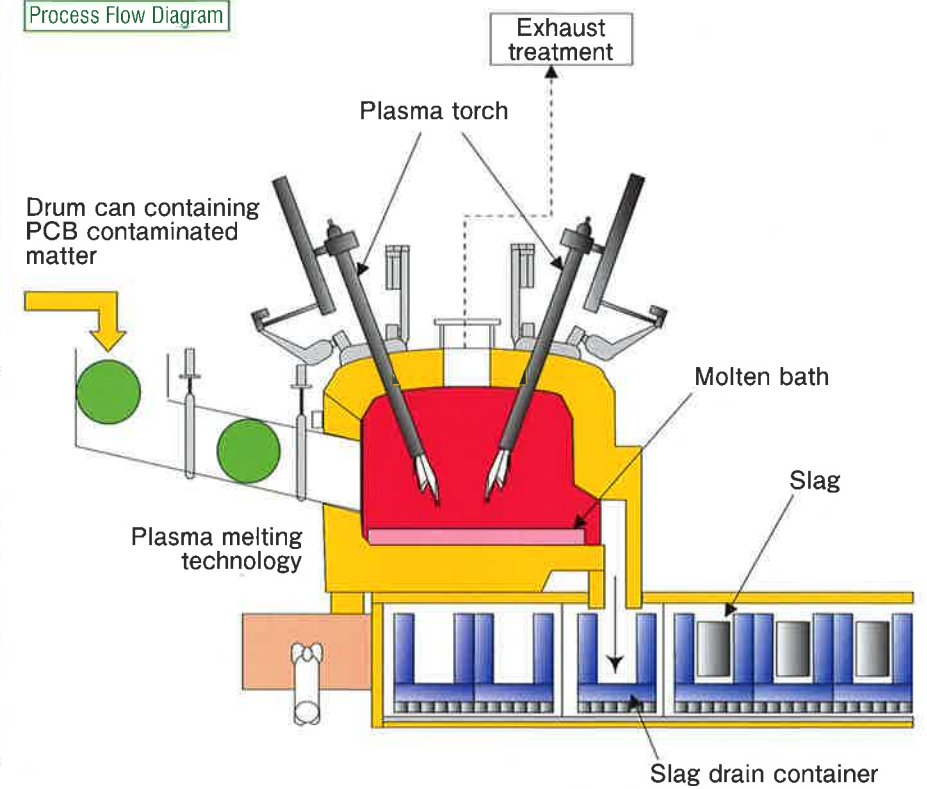
Plasma Melting Technology for PCB-contaminated Waste

Plasma melting technology allows collective processing of different kinds of PCB-contaminated wastes in a drum, and thus removes the complicated manual work which is necessary to break them down. Combining high-temperature plasma generated by electric energy with molten slag bath increases the ability to maintain high temperatures that are used as a heat source to decompose and detoxify PCBs. The technology has been used by Kitakyushu PCB waste treatment facility and Hokkaido PCB waste treatment facility.



A drum in the melting process

Process Flow Diagram



The Chugoku Electric Power Co., Inc Insulating Oil Recycling Center



Japan Environmental Safety Corporation Hokkaido PCB Waste Treatment Facility



Japan Environmental Safety Corporation Toyota PCB Waste Treatment Facility



Japan Environmental Safety Corporation Kita-Kyusyu PCB Waste Treatment Facility

Process Equipment

We contribute to manufacturing of high-quality products with our most advanced technology.

We manufacture glasslined equipment as the core of production processes and various other equipment and facilities for the chemical industry field.

We contribute to wide range of industries, such as fine chemicals, pharmaceutical, electric materials and food industries, wherever high-quality production technology is required.

Furthermore, new technologies, such as hydrogen generation systems to produce hydrogen which is expected to be a next-generation energy source, are marketed and development is continued.

Most advanced production base



ISO9001/14001

The production base of our company, Harima Plant, has established high-quality, speedy and economical production systems with the most advanced facilities like the world's largest-class furnace and advanced technical capabilities. The facility is ASME(U), ISO(9001), and ISO [14001] certified, and is a recognized factory in both China and Korea. We manufacture outstanding products based on our superb quality assurance system.



No.1 furnace

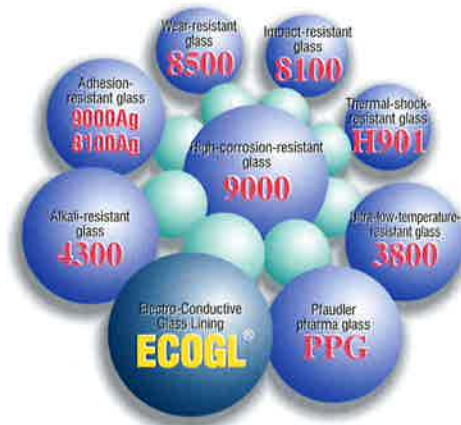
Harima Plant



● Site area / 98,500m²
● Structure area / 30,800m²

Corrosion-resistant material and surface treatment technology

Glass lining is utilized for various reaction processes in the chemical industry and other industries. We have a wide range of product line including #9000 highly-corrosion-resistant glasses as our main products. In addition, electrolytic polishing technology is employed as an adhesion prevention measure in the surface treatment of stainless steel.



Glasslined Reactor

Glasslined Agitator "TWINSTIR" Reactor

This glasslined reactor, which can be said to be the crystallization of glass-lining technology, is the answer to more sophisticated needs with its outstanding corrosion-resistance characteristics. Newly developed "TWINSTIR Impeller" make it possible to mix 3% of small volume fluid and shows its outstanding mixing performance. The newly developed "ECOGL" is of no-pinhole Glass lining with its light blue color, has excellent static electricity destruction prevention performance.



Glasslined impeller/TWINSTIR

Polymerizer / Reactor

Stainless steel "FULL ZONE" Reactor

This reactor, which is equipped with "FULL ZONE Impeller" contributes to productivity and quality improvement in various manufacturing processes with its improved mixing capabilities. Various improvements have been confirmed in the reduction of coagulation and adhesion in emulsified polymerization, larger particle diameters in suspended polymerization, increased purity in crystallization, higher yield ratio in highly concentrated cultivation and shorter times in surface absorption reactions.



New type churning wings made with glass lining / TWINSTIR

High-purity Hydrogen / Oxygen Generator

HHOG

High-purity Hydrogen Oxygen Generator

By directly electrolyzing pure water, HHOG generates on-site-produced, high-purity hydrogen and oxygen gases without using or emitting toxic substances.

We have a delivery record of more than 100 units, mainly accounted for by those used as factory utilities, both domestic and overseas.

Recently, the combination of HHOG with a renewable energy technology, such as solar power generation, is drawing attention as a way of converting electricity to hydrogen and storing electric energy for a long period.



Compact type hydrogen server (1 to 10Nm³/h)



Skid mounted type (10 to 60Nm³/h)

Evaporator

Wiped Film Evaporator "WIPRENE" "EXEVA"

The wiped film evaporator creates thin film from treatment liquid and evaporates it at a lower temperature under vacuum.

It best fits processes of purification, condensation, decoloration, deodorization and degassing of heat sensitive materials and high-boiling substances.

We provide two types of thin film evaporator depending on the liquid type: WIPRENE for low viscosity and EXEVA for high viscosity.



Wiped Film Evaporator WIPRENE / EXEVA

Mixer / Dryer

Vacuum Dryer Mixer "Conical Dryer"

In the pharmaceutical manufacturing process, our powder-handling equipment plays very important roles.

Our products, PV Mixer which dries materials efficiently in shorter times, Filter Dryer which can perform both filtering and drying work in a single sealed container, and Conical Dryer which can operate with lower contamination and has better cleaning characteristics are widely utilized in various industries.



Vacuum drying mixer / Conical dryer

Technological Development

We Pursue Technology Friendly to Human Society and the Environment.

We focus our efforts on the development of new technologies which protect the abundant natural environment and comfortable life in human society. Our latest technologies are applied to our new products and services to meet complex needs. Furthermore, to make our technologies more proven, we carry out joint research programs with customers, measurement in full-scale plants and experiments in pilot plants.



Diagnosis of living organisms using gene analysis
We diagnose and treat microorganisms in biological wastewater treatment process and propose optimal operational conditions.



Energy-Saving Testing Plant of Membrane Bio-Reactors
Advanced biological processing technology which maintains the high effluent quality with the downsized bio-reactor by micro filtration.



Biogas upgrading system

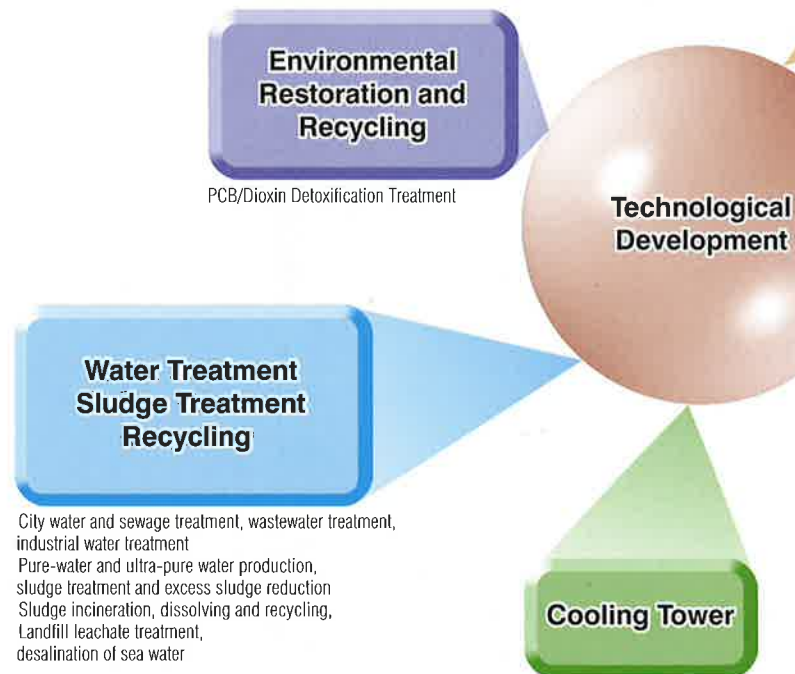
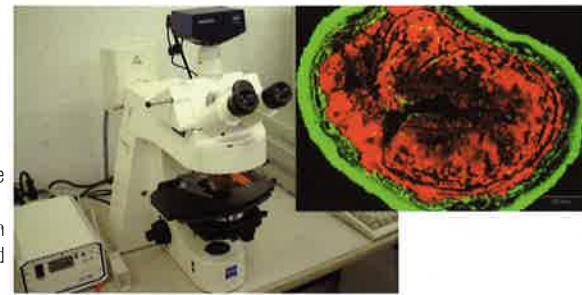


Biogas purifying technology for the injection into the city gas grid

Upgraded biogas can be used as fuel for automobiles that run on natural gas. We feed biogas purified to an even higher quality level into the city gas grid.



MF Membrane Unit RO Membrane Unit
Wastewater recycling system with membrane technology.
Sewage treatment water filtrated with membrane can be reused as industrial water.



Environmental Restoration and Recycling

PCB/Dioxin Detoxification Treatment

Water Treatment Sludge Treatment Recycling

City water and sewage treatment, wastewater treatment, industrial water treatment
Pure-water and ultra-pure water production, sludge treatment and excess sludge reduction
Sludge incineration, dissolving and recycling, Landfill leachate treatment, desalination of sea water

Process Equipment

Glass-lined equipment (GL), Agitation equipment, Separation refining equipment / Powder processing equipment, Equipment and Systems for brewing, Hydrogen and oxygen generating equipment

Waste Treatment and Recycling

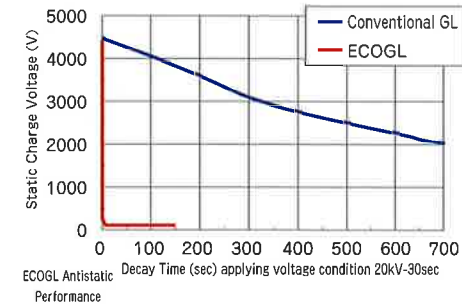
Gasification and melting furnace, Fluidized bed incinerator, Grate-type (stoker) incinerator, Plasma melting furnace, RDF (refuse-derived-fuel) facility, Various recycling facilities, Biomass treatment facilities (Methane fermentation, etc.)

Cooling Tower

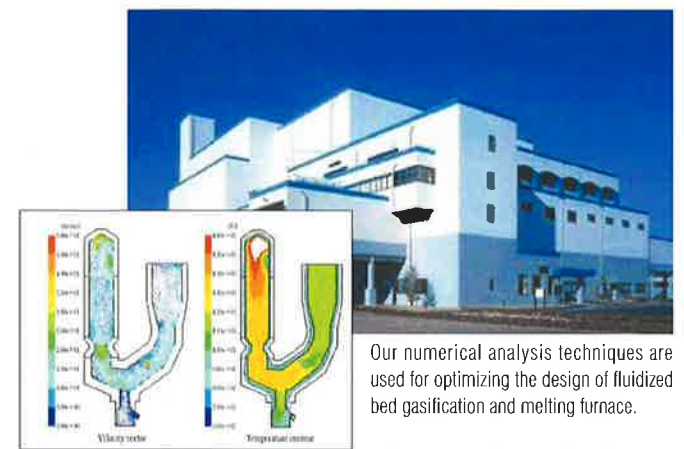
Cooling towers for industry, cooling towers for community central heating and air conditioning, super-low-noise cooling towers



Flow Visualization Water Tank
We perform gas / liquid fluid analysis about diffusers and mixers for wastewater treatment and propose new aeration systems and running conditions for energy saving.



ECOGL
By giving electric conductivity to the glass surface we have been developed antistatic glass lining (ECOGL) which has good antistatic and discharge resistance properties.



Our numerical analysis techniques are used for optimizing the design of fluidized bed gasification and melting furnace.



We have developed plasma based treatment processes for PCB contaminated matter.

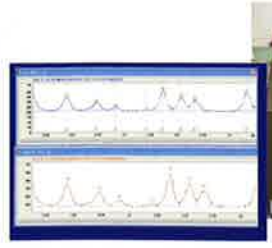
Environmental Analysis

To support technical development for better environment

We can propose solutions to various needs based on the abundant experience for water treatment technology which we have accumulated over many years. A wide range of analyses such as water, waste and soil are conducted. We continue our efforts to improve technology to contribute to society with our most advanced measurement technology.



Purge & Trap Gas Chromatograph/Mass Spectrometer



Chromatogram
Simple analytical method for very small amounts of PCBs in insulating oil.



Pretreatment Equipment

- Our Analysis Service Covers:
1. Potable water and sewage sludge
 2. Wastewater from factories, research centers, etc.
 3. Environmental standard items
 4. Industrial waste (PCB, metals, organics, etc.)

COMPANY PROFILE

- **Company Name:** Kobelco Eco-Solutions Co.,Ltd.
- **Head Office:** 4-78 1-chome, Wakinojima-cho, Chuo-ku, Kobe 651-0072 Japan
- **Capital:** 6.02 billion Yen
- **Main Stockholders:** Kobe Steel, Ltd., Shinsho Corporation, Nippon Life Insurance Company, Mitsubishi UFJ Trust and Banking Corporation, The Dai-ichi Life Insurance Company, Limited
- **Sales:** (Non-consolidated) 52 billion Yen (Estimated for FY2011)
51.5 billion Yen (Expected for FY2012)
(Consolidated) 71.1 billion Yen (Estimated for FY2011)
73.5 billion Yen (Expected for FY2012)
- **Employees:** (Non-consolidated) 888people
(Consolidated) 1,942people (As of Mar. 31, 2012)
- **Board Members:**

President and Representative Director	Kazuo Shigekawa
Representative Director and Executive Officer	Hideyuki Kondo
Director and Executive Officer	Keisuke Okamoto
Director and Executive Officer	Hiroshi Okabe
Director and Executive Officer	Akihiko Jogu
Director and Senior Officer	Takahide Tokieda
Director and Senior Officer	Syunsaku Hirao
Director and Senior Officer	Makoto Kalaoka
Director	Harumi Nagasue
Auditor	Hidenori Maeda
Auditor	Yoshihiro Nakazawa
Auditor	Chikashi Sasai
Auditor	Syoji Ishida
- **Permission and registration:** Minister's permission for specific construction industry (Civil work business, constructionwork business, electric work business, piping work business, machinery installation business, water service engineering business, cleaning facility installation business), first-class architect office registration, environmental measurment proof office registration, ASME code "U stamp" ISO 9001 certification ISO 14001 Approved
- **Affiliated Companies:**

Kobelco Eco-Maintenance Co.,Ltd. Kobelco Eco-Staff Co.,Ltd. E.R.C. TAKAJO Co.,Ltd. TOYOTA ENVIRONMENT SERVICES CO.,LTD. Kakogawa Environment Service Co.,Ltd. Takao Environment Service Co., Ltd.	Ikoma Environment Service Co., Ltd. Haga Environment Service Co., Ltd. Kofu-Kyoto Environment Service Co., Ltd. Hydrotek Eco Japan Co., Ltd. KOBELCO ECO-SOLUTIONS VIETNAM CO.,LTD. JINDAL ITF KOBELCO ECO LIMITED
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- **U R L :** <http://www.kobelco-eco.co.jp>

HISTORY



Message from the President

With regard to the market environment surrounding our group, we recognize that domestic public investment in relation to water treatment business is remained flat while domestic public investment related to waste product treatment business recovering. Meanwhile, due to a rise in company earnings and full-scale post-earthquake reconstruction demands, domestic private equipment investment in water treatment business and chemical/ food machinery business is expected to gradually recover down the road. We realize, however, that the current difficult situation is likely to continue for a while. Internationally, in Asia, with continued strong growth of emerging countries, we can expect continued investment in social and industrial infrastructure at high levels despite concern about inflation. In Europe, in line with their principle that reduction of environmental load is the most urgent priority, reduction of fossil fuel consumption is focused on as a measure to reduce greenhouse gas emission with the key word of "Waste to Energy." We consider their investment in environment and energy industries will increase despite the debt problems in some EU countries. Under these circumstances, we are committed to continuing our efforts to "Strengthen our Japan operations" while "Forging ahead and increasing sales in overseas markets" and "Creating new agendas and projects," in the pursuit of achieving our "Medium-term business plan working towards 2015" aiming for sales of 100 billion Yen and a consolidated profit of 5 billion Yen. We will contribute to society as an "Environmentally Solutions Enterprise in sync with the Times" by offering technology useful to both global environmental conservation and living environment improvement.

June, 2012

President, Representative Director, **Kazuo Shigekawa**



- Nov. 1946** Inaugurated as Glass-lined Product Department of Kobe Steel, Ltd., when the Glass-lined Plant was constructed on the premises of the Kobe Steel Yamanote Plant. Commenced with glass lined product manufacturing and sales for export from the following year.
- Jun. 1954** Cooperated on a technical level with Plaudler of the United States, broke away from Kobe Steel and became the independent Shinko Plaudler Co., Ltd. with 90 million yen capital invested by both companies.
- Dec. 1957** Broke into water treatment equipment business.
- Mar. 1962** Broke into cooling tower business.
- Nov. 1962** Broke into sewage and organic waste water treatment equipment business.
- Jul. 1976** Completed Harima Plant, commenced operation.
- Aug. 1978** Delivered No.1 incinerator for sewage sludge incineration plant.
- Mar. 1982** Delivered No.1 incinerator for municipal waste incineration plant.
- Oct. 1989** Company title changed to Shinko Pantec Co., Ltd.
- Apr. 1992** Integrated the Production Department into the Harima Plant, and changed name to Harima Plant. Established the Technology Laboratory in the Kobe Hightech Park (Nishi Ward, Kobe City)
- Aug. 1994** Listed in the Second Section on the Osaka Securities Exchange.
- Jan. 1999** Broke into PCB treatment business.
- Apr. 1999** Established the Environment Analysis Center, and began offering analytical services for specified chemical substances and microchemical substances.
- Feb. 2001** Constructed a new headquarters.
- Oct. 2003** Consolidated Environmental Business Division of Kobe Steel, Ltd. and renamed the new entity Kobelco Eco-Solutions Co., Ltd.
- Jun. 2005** SD supply enterprise aimed at PCB detoxification facilities started at Harima Plant.
- Dec. 2005** Commenced operation of the Waste Management Final Disposal Site.
- Sep. 2006** Sagami-hara city ordered the largest scale domestic fluidized-bed gasification melting furnace. (top domestic record with this furnace type)
- Nov. 2006** Kobe city ordered the first domestic "bio-gasification facilities" for refining biogas with a high methane concentration from sewage sludge.
- Apr. 2008** Began operating the Eco Station, a facility that supplies biogas, at the Higashi-Nada Plant in Kobe City.
- Jun. 2008** SD supply enterprise aimed at PCB detoxification facilities started at Muroran SD Production Plant.
- Apr. 2009** Established office in Vietnam. (Ho Chi Minh city)
- Dec. 2009** Achieved 308 days of continuous operation at 'View Clean Okuetsu' city waste treatment plant (Fukui prefecture)
- Jan. 2010** Established office in Dusseldorf city, Germany.
- Oct. 2010** Began sending biogas from sewer lines into utility gas pipes at the Higashi-Nada Plant in Kobe City (a first in Japan).
- Nov. 2010** Established overseas affiliate KOBELCO ECO-SOLUTIONS VIETNAM CO., LTD. in Ho Chi Minh City, Vietnam.



KOBELCO ECO-SOLUTIONS CO., LTD.

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Kyushu Branch Office:

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TEL: +81-79-436-2500 FAX: +81-79-436-2506

Technical Research Center:

1-4, 1-chome, Murotani, Nishi-ku, Kobe, 651-2241, Japan
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Sapporo, Sendai, Nagoya, Hiroshima

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