

# 03. Biomass

In addition to sewage sludge, various organic wastes discharged from food and livestock are gasified and converted into fuel. This business is conducive to making effective use of them as energy sources that have been unutilized so far.



## Effective use of biomass

### Methane fermentation process

We promote methane fermentation business to treat the local biomass discharged from industries such as food and livestock. Biogas generated in the treatment process is effectively used as renewable energy.



Methane Fermentation Process Facility

## Effective use of biogas

### Biogas refining, Biogas power generation

Biogas generated through methane fermentation is refined into high-purity methane, which is effectively used as a raw material for hydrogen production and as a fuel for natural gas vehicles. We are also developing a power generation business that utilizes biogas.



Biogas Upgrading System

## Methane fermentation residue recycling

### Conversion of fermentation residue to fuel (hydrothermal carbonization)

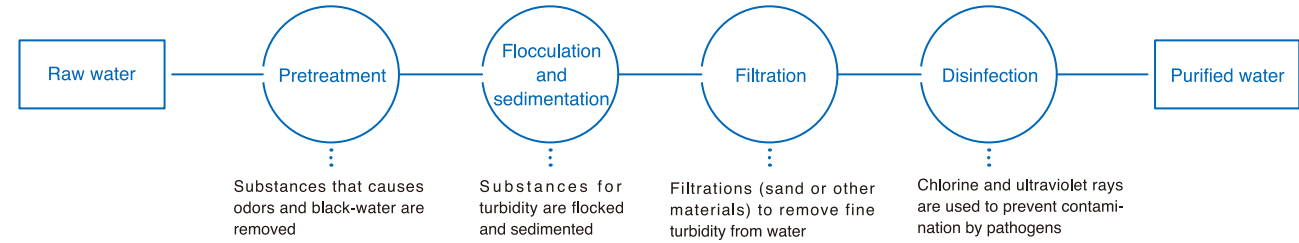
This technology involves carbonizing sludge at low temperatures and in a wet state (reacting in a liquid medium), greatly reducing the energy required for solid fuelization. The main feature is that the necessary heat source can be provided solely by the waste heat from generators or similar devices. \*Currently undergoing demonstration experiments at the Seibu Wastewater Treatment Plant in Fuji City.



Hydrothermal carbonization facilities

# 04. Water Treatment

We provide systems and products that help water suppliers solve the challenges that they are facing, such as renovation and renewal of aging facilities, odor and flavor issues, and a shortage of engineers.



## Pretreatment

### Harnessing the cleansing action of nature Biological Contact Filter/BCF™

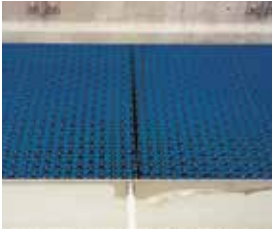
BCF™ can remove odor, ammonia nitrogen, surfactants, manganese, and other substances efficiently by utilizing reactions of microorganisms. This process features excellent energy efficiency compared to physicochemical processing.



## Sedimentation tank

### Excellent performance of sedimentation and separation Wave-Form Tilted Pipe (V-Wave™)

The unique corrugated cross-sectional shape provides a high rectification effect and has excellent performance of sedimentation and separation. The V-shaped tube bottom helps smooth discharge of the sludge.



## Filtration

### Safe and secure filtration using siphons Open Siphon Filter (OSF™)

A highly reliable gravity type filter with a unique siphon mechanism. Since no large size automatic valves is installed, it is easy to maintain.



## Filtration

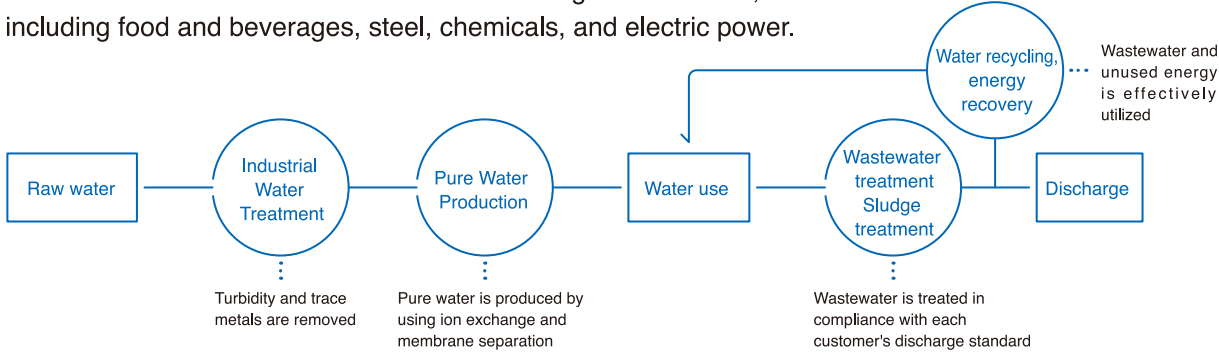
### Powerless and full automatic operation Automatic Siphon Filter (ASF™)

Full automatic operation is possible because ASF™ has no automatic valve and pump. This can significantly reduce operating expenses such as electricity and labor costs.



# 05. Industrial Water Treatment

We provide systems and products that contribute to energy conservation, energy creation, and waste reduction for customers in a wide range of industries, including food and beverages, steel, chemicals, and electric power.



## Industrial water treatment facility, pure water production facility

We provide industrial water treatment facility that remove turbidity, iron, and manganese from raw water at high speed, as well as pure water production facility that uses ion exchange, membrane separation, etc.



Pure water production facility

## Wastewater treatment facility, sludge treatment facility

We have a wide range of treatment technologies for handling industrial wastewater from various industries, including the organic wastewater treatment facility PABIO MOVER™, which is capable of high-load treatments.



PABIO MOVER™ (i.e. carrier)

## Water recycling facility, energy recovery facility

We propose organic wastewater treatment equipment (PANBIC-EC™) that can recover biogas and systems that effectively utilize unused wastewater and excess steam.



PANBIC-EC™

## Chemicals

Based on our accumulated know-how and experience over the years, we offer an extensive lineup of chemicals, such as high-molecular coagulants, inorganic chemicals, cooling tower agents, and boiler water treatment agents, to satisfy our customers demand.



# 06. Cooling Tower

We are the top cooling tower manufacturer boasting more than 5,000 track records in Japan and overseas delivered across a wide range of industries, including steel, chemicals, and electric power. We meet the needs of customers not only with regard to new construction, but also for upgrading to higher performance cooling towers or repairing aging cooling towers.



## Industrial Cooling Tower

We can select the optimal cooling tower based on specific requirements such as water volume, water quality, temperature conditions, and installation space, from our lineup. We also focus on reducing environmental impact by improving the efficiency of fillers and fans.



## Cooling Tower for Community Heating and Cooling

Since cooling towers are often installed on rooftop floors in commercial areas, we offer cooling towers that meet a variety of constraints, such as with regard to anti-white smoke, noise, vibration, space saving, and maintenance.



## After-sales services

We provide consultation for regular inspections, repairs and renovations, on-site overhauls, specification changes, and updates, regardless of whether the equipment is manufactured by us or other suppliers. We can also help you with planning, including life cycle cost (LCC) evaluations.

