



Wastewater treatment system improvements and new system installation examples

☐ Aquablaster installation examples

Aience Co., Ltd.

Hotel kitchen wastewater treatment

● Photograph shows untreated and treated water from a luxury hotel kitchen.



*The treated water in the photo is not a supernatant (the top clear layer of liquid above solid residue after precipitation, etc.). It is water extracted during aeration stirring. A key characteristic of Aquablaster is that it even treats suspended solids. Please feel free to **tour a facility in operation**. (*No activated sludge used)

**Untreated
water**

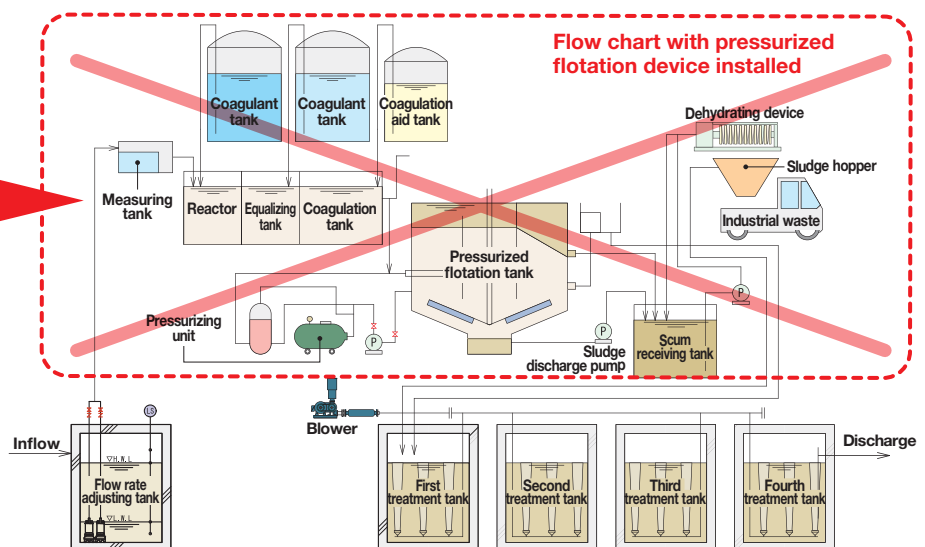
B O D : 800mg/ℓ
S S : 600mg/ℓ
N-hex : 150mg/ℓ

**Treated
water**

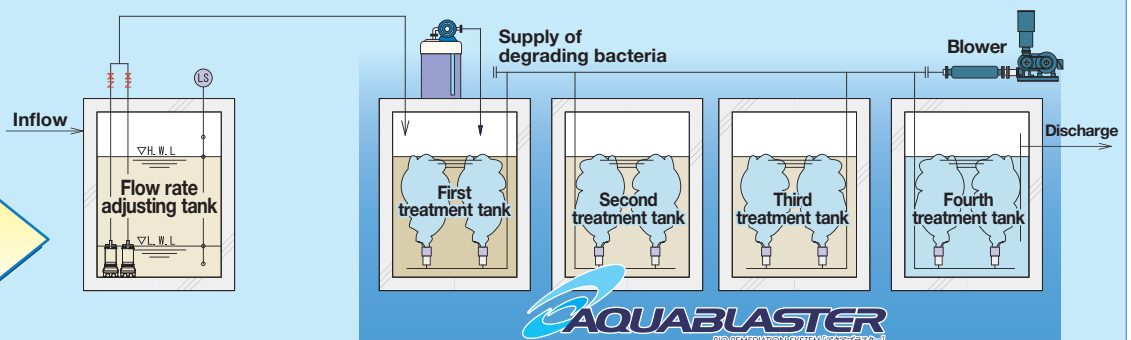
B O D : 120mg/ℓ or less
S S : 80mg/ℓ or less
N-hex : 10mg/ℓ or less

Aquablaster's water treatment mechanism

At this site, unpleasant odors were eliminated with no need for a pressurized flotation device.



Compact system achieved with introduction of Aquablaster!



Baked goods factory wastewater treatment



- Wastewater type : Baked goods wastewater
- Volume : 30m³/day
- Model : Aquablaster + Unit tank
AL-750 + AS-250

Problem

Treatment of high-load wastewater from a baked goods factory was sometimes unsuccessful.

Challenges

Wastewater treated so that it falls within acceptable sewer discharge limit.

Solutions

The existing 60-ton treated water tank was divided into two 30-ton adjustment tanks, and a 30-ton unit tank was added.

Effects

Treatment achieved the target of falling within the acceptable sewer discharge limit, and the unpleasant odors that had previously been generated were completely eliminated.

Treatment results (Unit: mg/ℓ)

B O D : 3,000 → 300 or less
S S : 4,000 → 500 or less
N-hex : 400 → 30 or less

Plastic recycling plant wastewater treatment



- Wastewater type : Wastewater from plastic recycling processes
- Volume : 6~10m³/day
- Model : Unit tank + AL-750
electrocoagulation flotation system

Problem

A plastic crushing and recycling plant established by a major manufacturer was generating high-load wastewater with BOD over 3000mg/L, and wastewater quality problems occurred at various sites the company delivered to, prompting guidance from the authorities.

Challenges

Wastewater was treated so as to fall within all relevant municipal river or sewer discharge limits.

Solutions

Two UT-15B unit tanks and a coagulator were used to treat wastewater so that it fell within local river discharge limits.

Effects

With the advancement of treatment, the target of falling within river discharge limits was met. With the coagulation settling method, five tons of sludge a day was generated, but this figure was reduced to 75kg a day with this system.

⇒ Afterward, the system was adopted at 12 plastic recycling plants.

Treatment results (Unit: mg/ℓ)

B O D : 3,000 → 100 or less
C O D : 2,000 → 100 or less
S S : 800 → 30 or less
N-hex : 100 → 5 or less

Boxed lunch plant wastewater treatment



- Wastewater type : Boxed lunch plant wastewater
- Volume : 220m³/day
- Model : Aquablaster system AL-750

Problem

Treatment was carried out with a pressurized flotation system, but it proved ineffective and resulted in payment of fines to the municipality as well as trouble with foul odors and sludge and complaints from neighbors.

Challenges

The customer wanted to reduce fine payments and eliminate putrid odors.

Solutions

Seven 40-ton precast concrete tanks were buried and treatment carried out with Aquablaster.

Effects

The treatment successfully achieved the goal of bringing wastewater within the sewer discharge limit. The problem of unpleasant odor generation was solved as well.

Treatment results (Unit: mg/ℓ)

B O D : 2,500 → 400 or less
S S : 1,000 → 400 or less
N-hex : 350 → 40 or less

Food waste recycling plant wastewater treatment



- Wastewater type : Food waste recycling plant wastewater
- Volume : 30m³/day
- Model : Aquablaster system AL-750+ AS-250

Problem

Carbonization reduction of food-related industrial waste generates distilled water, and while this appears transparent, it has a BOD of 500 or greater and pH of 2 or less. For this reason the customer wanted to treat it and use it as coolant water for machines.

Challenges

After treating the water and making the pH neutral, it can be used for cooling of machines without having a negative impact on the machines.

Solutions

After installing tanks with a total capacity of 100 tons and adjusting the pH, the water was treated with Aquablaster.

Effects

Despite influx of wastewater with higher concentrations than the plan called for, treatment continues smoothly with no problems.

Treatment results (Unit: mg/ℓ)

B O D : 800 → 200 or less
S S : 200 → 50 or less
N-hex : 10 → 5 or less

Wastewater treatment at a food processing plant



- Wastewater type : Food processing wastewater
- Volume : 200m³/day
- Model : Aquablaster system AL-750



Problem

Rough wastewater treatment was carried out using a pressurized flotation device and microorganism carrier agents, but the quality of discharged water was not consistent, and treatment costs were very high.

Challenges

Treatment was stabilized and simplified, and treatment costs were reduced.

Solutions

There was an existing wastewater treatment pit with a capacity of approximately 500 tons. Half of the water tank was used to install Aquablaster, and modifications were made so wastewater was discharged to the sewage system. The remainder of the tank was filled in.

Effects

Treatment proceeded smoothly, and aeration time during operation was reduced to around 16 hours, cutting electricity costs as well.

Treatment results (Unit: mg/ℓ)

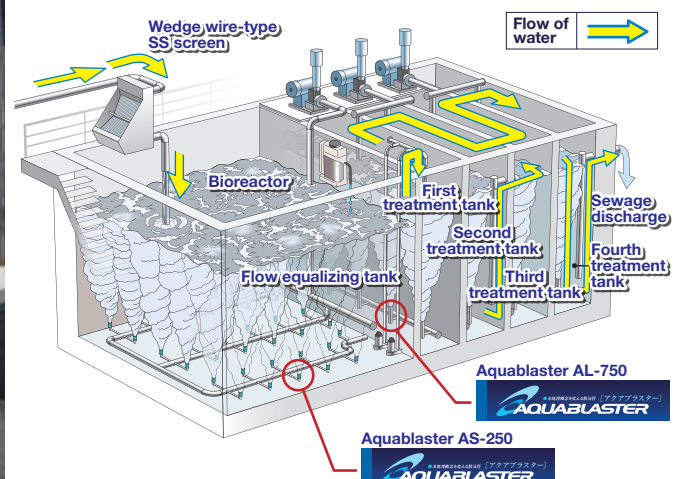
B O D	:	1,000	→	200 or less
S S	:	800	→	200 or less
N-hex	:	100	→	30 or less



At a new plant, we were involved in wastewater treatment from the design stage.

Repeat orders

Previously, Aience had remodeled an existing treatment facility with highly successful results, receiving positive feedback such as "We never knew such miraculous wastewater treatment existed!" When the new plant was planned, wastewater treatment was left up to us from the design stage. At this facility, the three blowers do not operate at the same time, they can treat wastewater by operating one by one for eight consecutive hours apiece, and the client is pleased with the energy savings.



Employee dining hall and mineral oil wastewater treatment Shimadzu Corporation Seta Works



- Wastewater type : Employee dining hall wastewater + Plant wastewater
- Volume : 8m³/day + 0.1m³/day
- Model : Aquablaster system AL-750



- Wastewater type : Employee dining hall wastewater
- Volume : 45m³/day
- Model : Aquablaster system AS-250

Problem

The company had relied on coagulation treatment of kitchen wastewater from the employee cafeteria, but treatment problems occurred and discharged waste levels exceeded their in-house targets.

Challenges

The company is rigorously committed to compliance, and in addition to treating kitchen wastewater impeccably, there was a need to treat waste liquid from washing of machine parts, which had thus far been disposed of as industrial waste.

Solutions

Two UT-10B unit tanks of 10m³ apiece and a 3-ton waste liquid unit tank were installed, and treatment carried out.

Effects

Waste liquids that had initially been a source of concern were treated with no problems, and we succeeded in getting below the in-house discharge target values consistently. In the final unit tank, water was purified to the degree that small, environmentally sensitive snails of the sort found in rice paddies appeared.

Treatment results (Unit: mg/ℓ)

B O D :	800 → 240 or less
S S :	600 → 240 or less
N-hex :	150 → 24 or less (plant and animal)
N-hex :	12,000 → 4 or less (mineral)



Based on these results at the Seta Works, the same system was installed at the employee dining hall.

Problem

When constructing a new plant, the company also built a new employee dining hall, and wanted to treat the wastewater it generated properly and guarantee corporate compliance.

Challenges

They wanted to construct a treatment facility at low cost by repurposing an old fire-prevention water tank as a wastewater treatment pit.

Solutions

Aquablaster AS-250 was installed in the old fire-prevention tank, and a blower was also installed underground. An expansive wood deck was built atop the tank as a place for employees to relax.

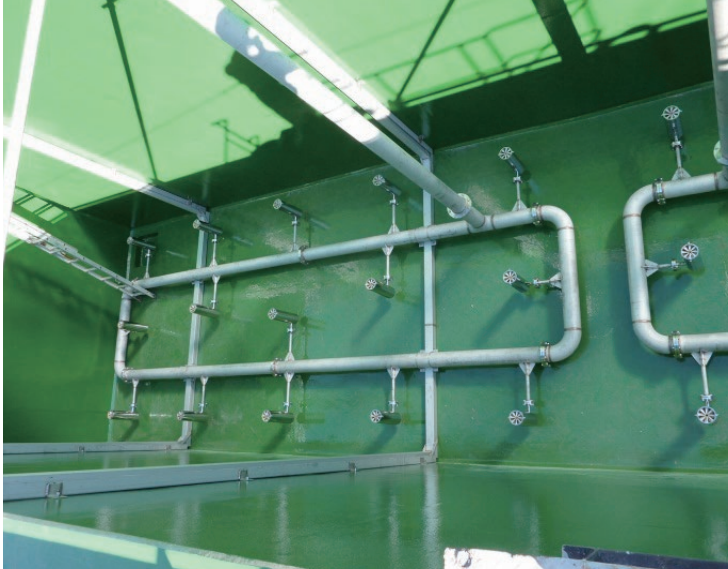
Effects

The company had independently established voluntary standard values for discharge, not to exceed 80% of the standard sewage discharge value, and this target was consistently achieved.

Treatment results (Unit: mg/ℓ)

B O D :	800 → 240 or less
S S :	600 → 240 or less
N-hex :	150 → 24 or less

Chemical plant wastewater treatment



- Wastewater type : Chemical plant wastewater
- Volume : 600m³/day
- Model : Aquablaster system AL-750

Problem

With high COD, this wastewater was difficult to treat biologically and phenol treatment was not fully effective. Also, sludge in the sediment tank did not settle completely and caused trouble.

Challenges

Boosting the COD cut rate and assisting the settling of sludge in the sediment tank.

Solutions

Thirty Aquablaster AL-750 units were installed in a 240-ton water tank, and eight units were installed in the sediment tank on top of a sludge eater to force sludge to settle.

Effects

Treatment of phenol proceeded more smoothly than predicted, and levels fell well below acceptable limits. In the sediment tank the sludge settled and there was no need to operate the sludge eater. Aerobic treatment with Aquablaster proceeded smoothly, and it is thought that gases such as hydrogen sulfide stopped attaching to the sludge.

Treatment results (Unit: mg/ℓ)

Phenol : 20 → 1.0 or less

Construction equipment manufacturing plant waste liquid treatment



- Wastewater type : Waste liquid from plant (after coagulation)
- Volume : 20m³/day
- Model : Aquablaster system AL-750

Problem

The customer wanted to treat waste oil and painting-related waste liquids generated at the plant on site and cut emissions to zero, rather than shipping them out as industrial waste.

Challenges

Coagulation treatment alone was not sufficient, and it was necessary to perform further treatment so as to be able to release the liquids to sewers.

Solutions

Seven Aquablaster AL-750 units were installed in an unused 60-ton tank, and treatment carried out over three days.

Effects

The treatment easily succeeded in bringing the waste oil and liquid below acceptable sewer discharge limits. At first there was a surprising amount of foam generated by the large amount of surfactant in the wastewater, but this problem was brought under control with the addition of small amounts of silicone defoaming agent.

Treatment results (Unit: mg/ℓ)

B O D : 1,000 → 300 or less
S S : 1,000 → 300 or less
N-hex : 100 → 30 or less

Treatment of wastewater from bus storage yard containing mineral oils (N Co.)



- Wastewater type : Bus storage yard wastewater
- Volume : 40m³/day
- Model : Aquablaster system AS-250

Problem

Wastewater from washing and maintenance of buses, containing mineral oils, was treated with a pressurized flotation system and other treatment equipment, but there were problems with sludge generation as well as high costs.

Challenges

The customer wanted to bring wastewater within acceptable sewer discharge limits using only Aquablaster and bio-injection only, without using a pressurized flotation system.

Solutions

Twenty Aquablaster AS-250 units were installed in an existing 40-ton water tank and bio-injection performed.

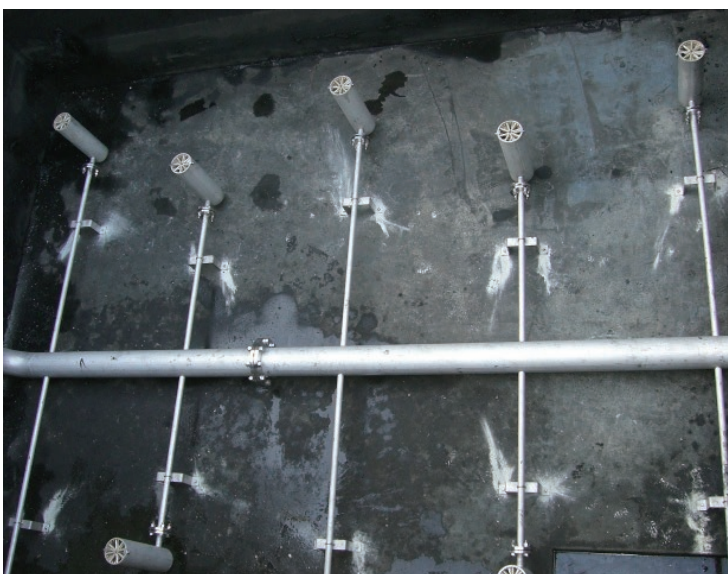
Effects

The treatment succeeded in bringing the wastewater below acceptable sewer discharge limits as hoped. The problem of unpleasant odor generation was solved as well. Aerobic treatment with Aquablaster proceeded smoothly, and it is thought that gases such as hydrogen sulfide ceased to be generated.

Treatment results (Unit: mg/l)

Mineral oil N-hex : 30→5 or less

Treatment of wastewater from bus storage yard containing mineral oils (H Co.)



- Wastewater type : Bus storage yard wastewater
- Volume : 40m³/day
- Model : Aquablaster system AL-750

Problem

Wastewater from washing and maintenance of buses, mixed with mineral oils, was treated with sand filtration and other treatment equipment, but there were problems with sludge generation as well as high costs.

Challenges

The customer wanted to bring wastewater within acceptable sewer discharge limits using only Aquablaster and bio-injection only, without using the mechanical systems employed thus far.

Solutions

Sixteen Aquablaster AL-750 units were installed in two existing 70-ton water tanks and bio-injection performed.

Effects

The treatment succeeded in bringing the wastewater below acceptable sewer discharge limits as hoped. The problem of unpleasant odor generation was solved as well.

Treatment results (Unit: mg/l)

Mineral oil N-hex : 30→5 or less

Purification of circulating water for water-based painting at transport plane plant



- Wastewater type : Circulating water for water-based painting
- Volume : 10~30m³/day
- Model : Aquablaster + Coagulation system

Problem

The quality of circulating water, used in the water-based painting process by a transport plane manufacturer, deteriorated drastically, and the putrid odor of acetic acid pervaded the plant interior.

Challenges

The customer wanted to eliminate the putrid odor and improve the work environment, as well as prolonging the service life of circulating water and reducing costs.

Solutions

Coagulation settling equipment and a belt press dryer were installed in two UT-30 unit tanks.

Effects

The rotting odor was completely eliminated and the service life of circulating water lengthened. The belt press also had a strong deodorizing effect, hard sludge with minimal content was produced and costs were curtailed as well.

Purification of circulating water for melamine-based painting at transport plane plant



- Wastewater type : Circulating water for melamine-based painting
- Volume : 30m³/day
- Model : Aquablaster system AL-750

Problem

During construction of a new construction equipment plant, the customer wanted to adopt the Aquablaster system that had proven effective at a contractor's plant, and resolve existing issues with refuse ponds.

Challenges

The customer wanted to save ¥4 million or more per year by eliminating the putrid odor and prolonging the service life of circulating water.

Solutions

Refuse ponds totaling 30 tons were constructed with three 10-ton tanks, and 12 Aquablaster AL-750 units were installed.

Effects

At existing plants, water tanks had been cleaned once a month, but after the system was installed at the new plant, it was 14 months until the water tanks had to be cleaned. This succeeded in cutting costs by over ¥4 million annually.

Integrated wastewater treatment facility at industrial park Aeration tank



- Wastewater type : Integrated wastewater at industrial park
- Volume : 6000m³/day (Storage time in 1500 m³ adjustment tank: six hours)
- Model : Aquablast AL-750

Problem

Hydrogen sulfide was generated, and treatment problems occurred.

Challenges

The aim was to eliminate hydrogen sulfide, thereby reducing sludge and increasing treatment efficiency.

Solutions

Aquablast AL-750 (94 units) were installed in a 1500m³ water tank and aeration was carried out.

Effects

Not only was hydrogen sulfide eliminated, BOD was reduced by 89% and normal hexane extracts reduced by 66% in pre-treatment simply by storing liquid in the adjustment tank for six hours, drastically decreasing the latter-stage load and improving SV.

Wastewater treatment at food additive plant



- Wastewater type : Food system drainage
- Volume : 15m³/day
- Model : Blaster tank BT-15 buried type (aboveground installation)

Problem

The plant had not installed wastewater treatment equipment thus far because it was not a designated facility, but as there had been complaints from neighboring residents due to the putrid smell of wastewater, they inquired with Aience about addressing the issue as inexpensively as possible.

Challenges

Putrid smell was eliminated with a low-cost wastewater treatment system.

Solutions

A blaster tank of the type conventionally buried underground was installed aboveground, cutting the initial cost of the wastewater treatment system.

Effects

After installation, the foul odor completely disappeared and complaints from neighbors ceased. Aience received a message of gratitude from the plant manager in charge.

■ Aquablaster installation examples

■ Treatment equipment installation examples



Major customers	Model	Purpose / Application
Yongin City Korea Wastewater treatment plant	Sewage treatment	Improvement of treatment efficiency and curtailing of power consumption
Hotel Okura kobe	Kitchen wastewater treatment systems	Purification of wastewater to within acceptable sewer discharge limits
HANKYU TAKARAZUKA HOTEL	Kitchen wastewater treatment system modification	Purification of wastewater to within acceptable river discharge limits
Yoshikawama town Feeding center	Kitchen wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
KYOKUTO KAIHATSU KOGYO CO.,LTD Miki factory.	Treatment systems for wastewater containing mineral oils	Purification of wastewater to within acceptable river discharge limits
Kawasaki syokuhin Industry	Food processing wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Yashiro town Feeding center	Kitchen wastewater treatment systems	Reduction of styrene gas emissions concentration
SHIMADZU CORPORATION Seta factory	Kitchen wastewater & workpiece washing wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Kyoto sando	Food processing wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Mihara town Feeding center	Kitchen wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Wastec shinnichisyo(nikko)	Plastic recycling wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
SUMIHEI kosan Nagano	Plastic recycling wastewater treatment systems	Cyclical use
Kanesu Sugisawa Office	Plastic recycling wastewater treatment systems	Improvement of wastewater treatment systems
Wastec Itakura factory(nikko)	Plastic recycling wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Odajimakensetsu(nikko)	Plastic recycling wastewater treatment systems	Purification of wastewater to within acceptable river discharge limits
Miyake-namakon CORPORATION	Plastic recycling wastewater treatment systems	Purification of wastewater to within acceptable sewer discharge limits
Wastec Kakizaki factory	Plastic recycling wastewater treatment systems	Odor reduction / Improvement of water purity (N-Hex5mg/L or less)
SHIMIZU Kouki	Plastic recycling wastewater treatment systems	Odor reduction / Improvement of water purity (N-Hex5mg/L or less)
Kansai Recycling Network	Food recycling wastewater treatment systems	Modification of food plant wastewater treatment system
TOYOTA MOTOR CORPORATION Higashi fuzi laboratory	Aquablaster AS-250	Modification work on existing wastewater treatment systems (aeration tank)
Nishinohon Kosan	Plastic recycling wastewater treatment systems	Frozen food and baked goods plant wastewater treatment
SHIMIZU Kouki(repeat)	Plastic recycling wastewater treatment systems	Modification work on integrated wastewater treatment systems
Kitanihon Tsusyo	Plastic recycling wastewater treatment systems	Modification work on integrated wastewater treatment systems
SHIMADZU CORPORATION Head office	Employees' dining hall kitchen wastewater	Installation of new wastewater treatment system
Hankyu Hanshin Motor Technology Co., Ltd	Plant wastewater and bus washing wastewater purification	Purification of wastewater to within acceptable sewer discharge limits
Nankai Vehicles Service Engineering Co., Ltd	Plant wastewater and bus washing wastewater purification	Purification of wastewater to within acceptable sewer discharge limits
KAWAHARA FOOD CO., LTD	Wastewater treatment modification work	Dissolution and removal of mineral oils
Caterpillar Japan Ltd.	Plant wastewater purification	Purification of wastewater to within acceptable sewer discharge limits
YAMAZAKI BAKING CO.,LTD. Kobe Cold dough office	Food processing wastewater treatment systems	Purification of wastewater to within acceptable sewer discharge limits
NISSAN Technical Center	Kitchen wastewater treatment systems	Purification of wastewater to within acceptable sewer discharge limits
UENO FINE CHEMICALS INDUSTRY.LTD.	Treatment of wastewater containing phenol	Purification of wastewater to within acceptable river discharge limits
COOP FOODS	Wastewater from prepared food manufacture	Purification of wastewater to within acceptable sewer discharge limits
COOP FOODS (repeat)	Wastewater from prepared food manufacture	Purification of wastewater to within acceptable sewer discharge limits
KONAN UTILITY CO.,LTD.	Integrated wastewater treatment at industrial park	Purification of wastewater to within acceptable river discharge limits
Kirishima Shuzo Co., Ltd.	Sludge storage tank stirring	Purification of wastewater to within acceptable river discharge limits

*All the above examples are treatment systems installed at plants. Examples of Aquablaster sold as a separate unit are not included.



<https://www.aience.co.jp/en/>
