

BUDDY WASTEWATER TREATMENT SYSTEM

Wastewater treatment facilities are facilities that purify water, which has played an important role in corporate activities, and return it to nature without affecting the environment, and play a major role in factory operations. We believe that a wastewater treatment facility that can operate stably with minimal costs and personnel can contribute to your business. We propose the **"BUDDY Wastewater Treatment System"** that solves various problems of wastewater treatment facilities and realizes energy saving, cost saving, and high efficiency.



FULL VIEW OF BUDDY WASTEWATER TREATMENT SYSTEM



OXIDATION REACTION IN OZONE REACTION TANK



YJ NOZZLE



BUDDY CARRIER



Raw water and treated water

SYSTEM OVERVIEW

BUDDY Wastewater Treatment System, ozone-induced OH radical reaction and collapse of micro / nano bubbles By action, decompose organic matter directly. In addition, the high-efficiency microbial treatment using activated carbon-containing carrier "BUDDY Carrier" can significantly reduce BOD and COD without relying on chemicals, making it possible to save energy and reduce sludge volume in a way that was not possible before. As a new-age wastewater treatment system, it can handle various types of wastewater treatment, from small septic tanks to large-scale industrial wastewater treatment facilities. Moreover, since it is possible to use the adjustment tank and the aeration tank as they are without remodeling existing facilities, Since it is not necessary to carry out extensive construction, it is possible to drastically reduce the cost.



DRAINAGE FROM FACTORY



THE OCCURRENCE SITUATION OF MICRO / NANOBUBBLES AND YJ NOZZLE

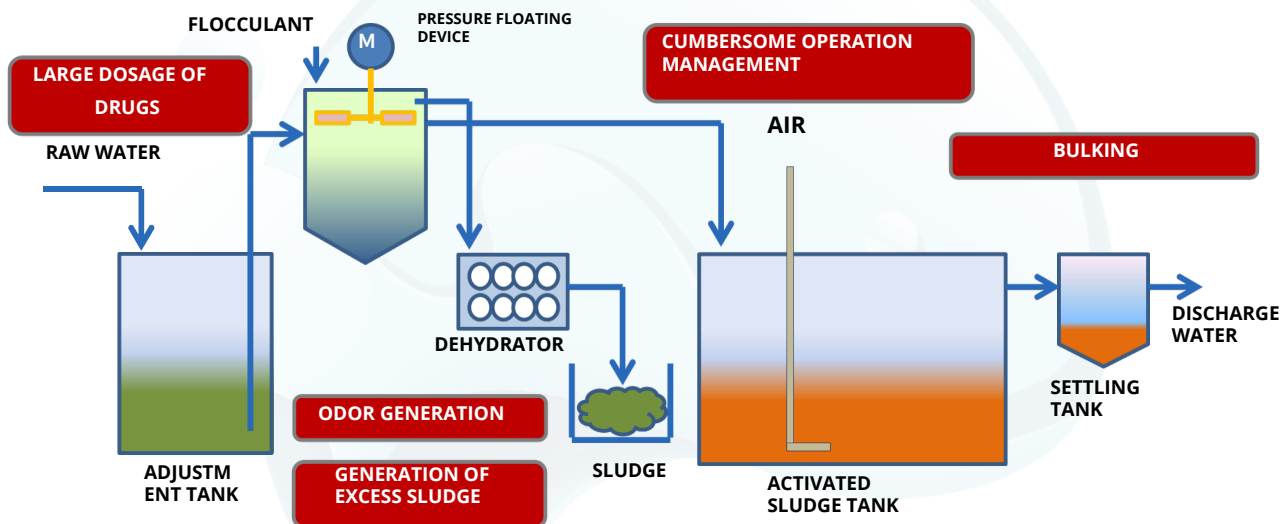


DRAINAGE AFTER TREATMENT

COMPARISON WITH ACTIVATED SLUDGE METHOD

The following problems often occur in the processing process.

- Increase in running cost by using a large amount of chemicals such as coagulant
- Supplementing of medicine and adjustment of dosage
- Cumbersome operation management such as machine maintenance
- Generation of a large amount of excess sludge
- Odor generation such as hydrogen sulfide
- bulking phenomenon due to inactivation of microorganisms, etc., all of which are running costs It will lead to an increase.



COMPARISON WITH ACTIVATED SLUDGE METHOD

In the conventional activated sludge process, clean wastewater is produced by sedimenting sludge in a sedimentation tank to separate solids and liquids. However, it costs a lot of money to operate the facility, such as the chemicals that flocculate sludge and the treatment of excess sludge. In addition, if the wastewater contains oils and fats, problems such as deterioration of water quality, bulking phenomenon, and offensive odors will occur, so it is necessary to add a large amount of chemicals. Therefore, it is necessary to allocate a large number of personnel for the maintenance and management of the facility. The BUDDY Wastewater Treatment systems are designed to solve a variety of problems. This is a new system that treats wastewater by maximizing the power of microorganisms by combining ozone, micro/nano bubbles, and carriers containing activated carbon.



AERATION TANK



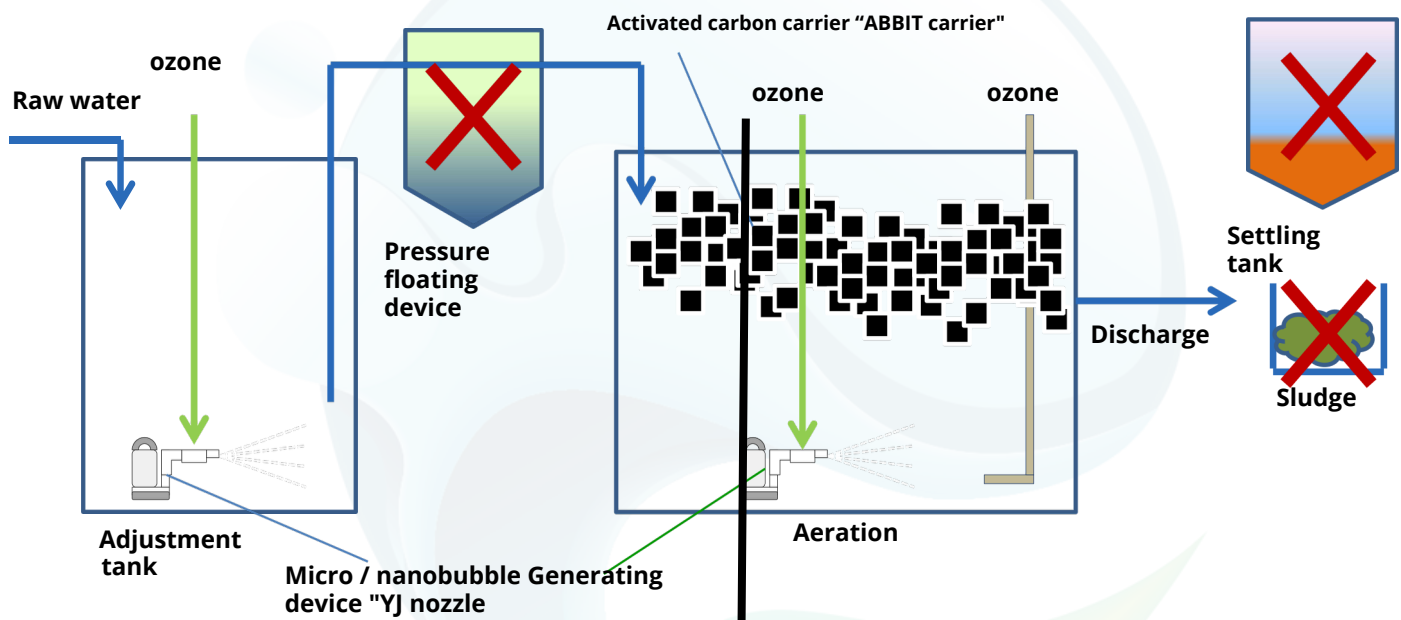
PRESSURE FLOATING DEVICE



EXCESS SLUDGE FROM THE DEHYDRATOR

BUDDY WASTEWATER TREATMENT SYSTEM FLOW

Ozone + micro / nano bubbles are released from the YJ nozzle installed in the adjustment tank, ozone having the strongest oxidizing power generates a large amount of OH radicals and physically decomposes the organic matter. The waste liquid whose decomposition was promoted by ozone is transferred to the aeration tank where activated carbon containing sponge carriers are laid. Ozone is converted into oxygen by the action of activated charcoal, and high-concentration pure oxygen is supplied to the micropores of the carrier, activating microorganisms and increasing decomposability compared to normal aeration tanks. As a result, both aerobic microorganisms and facultative anaerobic microorganisms are activated, and the occurrence of SS and sludge is further suppressed by causing food chain. Since SS is decomposed by intense turbulence and crushing action, there is almost no surplus sludge, and it can be discharged as it is to rivers, waterways, sea areas, sewage, etc.



COMPONENT EQUIPMENT



Micro / nano bubble generator "YJ nozzle"

Bubbles with a diameter of several hundred nanometers to 10 micrometers (1/100mm) or less. It has various effects such as adsorption of dirt and improvement of odor. The YJ nozzle can discharge a large amount of air-containing water containing micro-nano bubbles into water simply by supplying water with a general-purpose pump (such as a submersible pump).



High power ozone generator "BUDDY-OZ series"

Ozone has a strong acid that far exceeds that of oxygen, and by generating a large amount of OH radicals, it is used in a wide range of applications, such a decomposition of organic matter, deodorization of foul-smelling components, and decolorization of wastewater.

Wastewater from the raw water tank causes an oxidation reaction with micro-nano bubbles in the ozone reaction tank, and physically decomposes organic matter.



Activated carbon-containing sponge carrier "BUDDY carrier"

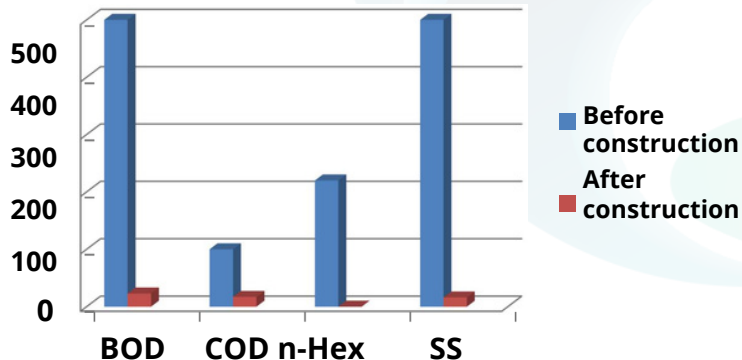
Micro/nano bubble generator "YJ Nozzle" This is an unprecedented, innovative carrier containing activated carbon. Activated carbon adsorbs COD and BOD components, and microorganisms living in the sponge decompose organic matter. Combined with ozone, high-concentration pure oxygen can be supplied, activating microorganisms more than normal aeration tanks, making it possible to treat persistent substances that are difficult for conventional microorganisms to decompose.

BENEFITS ① "REDUCTION OF SLUDGE GENERATION"

Due to the crushing action of micro / nano bubbles and OH radical reaction by ozone, Direct decomposition of organic matter greatly reduces BOD and COD. Furthermore, by transferring to a biological treatment tank containing BUDDY carriers, ozone is converted to oxygen by the action of activated charcoal. Since high-concentration oxygen is supplied inside the BUDDY carrier, microorganisms are more activated than in normal aeration tanks, and degradability is improved. Through these combined actions, excess sludge is reduced as much as possible and no sedimentation tank is required. processing Water can be discharged as it is. We released ozone + micro · nano bubbles from the YJ nozzle installed in the adjustment tank, the strongest Ozone having a strong oxidizing power generates a large amount of OH radicals and physically decomposes organic matter. Transfer waste liquid whose decomposition has been promoted by ozone to an aeration tank where active carbon-containing sponge carriers are laid line. Ozone may remain for about several hours, but due to the action of activated carbon, ozone is oxidized , And high concentration pure oxygen supply is carried out within the microporous of the carrier, so it is not possible to Microorganisms are activated on the surface to enhancedegradability.

Trends before and after construction

mg/l



Before introduction

Normal	BOD	500mg/L
	(Maximum value	11,000mg/L)
Normal	COD	100mg/L
	(Maximum value	150mg/L)
Normal	n-Hex	220mg/L
	(Maximum value	22,000mg/L)
Normal	SS	540mg/L
	(Maximum value	14,000mg/L)

After introduction

Direct shedding without sedimentation tank	
BOD	23mg/L
COD	17mg/L
n-Hex	<5mg/L
SS	16mg/L

BENEFITS ② SPACE SAVING AND REUSE OF EXISTING FACILITIES

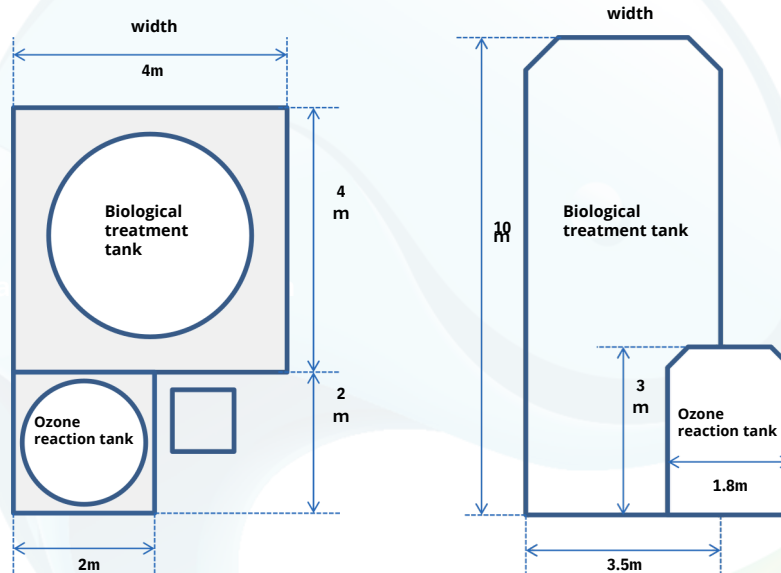
Secondly, we can deal with small scale facilities compared to conventional wastewater treatment facilities. Due to strong oxidation reaction treatment by ozone and micro-nano bubbles, organics are easily decomposed. Therefore, compared to the explosion tank of the activated sludge method, it can be handled with a small scale tank, which realizes overwhelming space saving. Since it is possible to efficiently supply the necessary amount of air, even if the blower in the aeration tank is reduced to 1/2, the same effect will be given. It is possible to increase and increase processing capacity. The demonstration plant treats 80 tons of wastewater per day in 12 hours with a 2.7-ton ozone reaction tank and a 54-ton biological treatment tank. In addition, since it can be installed using existing wastewater treatment facilities, there is no need to construct new facilities. For this reason, it is possible to perform highly efficient processing with less investment, so installation at low cost becomes possible.



By putting YJ nozzle in the adjustment tank, we can operate ozone + micro / nanobubble device



Outline of demonstration plant



MERIT (3) REDUCTION OF MAINTENANCE COST

The third advantage is that the micro/nano bubbles permeate every corner of the tank, preventing problems such as bulking and odors, and enabling stable operation management. As compared with the conventional method, BUDDY SYSTEM does not require maintenance due to facility operation or expenses for drugs. As we can save the cost of professional personnel and medicine for managing wastewater treatment facility, La You can keep your cost lower.

	Activated sludge method	BUDDY
Excess sludge volume	Many	Few
Footprint	1 0 0	2 5 ~ 5 0
Personnel in wastewater treatment tank	Ne cessary	No need
Installation cost	1 0 0	5 0 ~ 7 0
running cost	Many	Few