

3 | Treatment of wastewater containing mineral oils

- Purification of car wash wastewater after cleaning a vehicle such as an automobile, bus, and train



■ Treatment of wastewater containing mineral oils requires labor and costs...

Aquablaster diffusion pipe



In automobile or train repair shops and offices where vehicles are inevitably washed on the premises, wastewater containing mineral oils is generated; it takes labor and costs to treat such wastewater.



The sludge collection frequency reduced from 8 to 1

For the office in this example, the condition of the pit became as shown in the photo on the left, and oil mud was collected by an industrial waste disposal company three times a year. However, two years and six months have passed since the installation of the Aquablaster diffusion pipe, and no such work has been carried out since the installation.

Bus storage yard wastewater treatment example

Aquablaster diffusion pipe

This water mixed with mineral oil



when purified using only the Aquablaster diffusion pipe and bio-drip, without chemicals

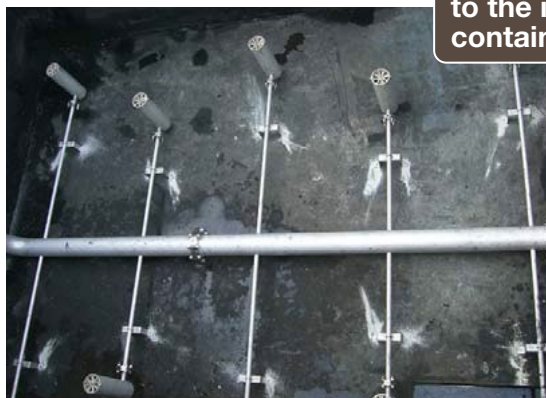


becomes this clear and pure.



Measurement target	Raw water	Treated water
PH	6.9	7.4
BOD	34	4
COD	27	8
SS	21	3
Mineral N-Hex	30	1.1
General bacteria	16,000,000	160,000

Oil content adheres to the inside of the container.



■ Bus storage yard cost reduction example

Aquablaster diffusion pipe

Three industrial waste collections per year



Reduced to one collection every two and a half years!!

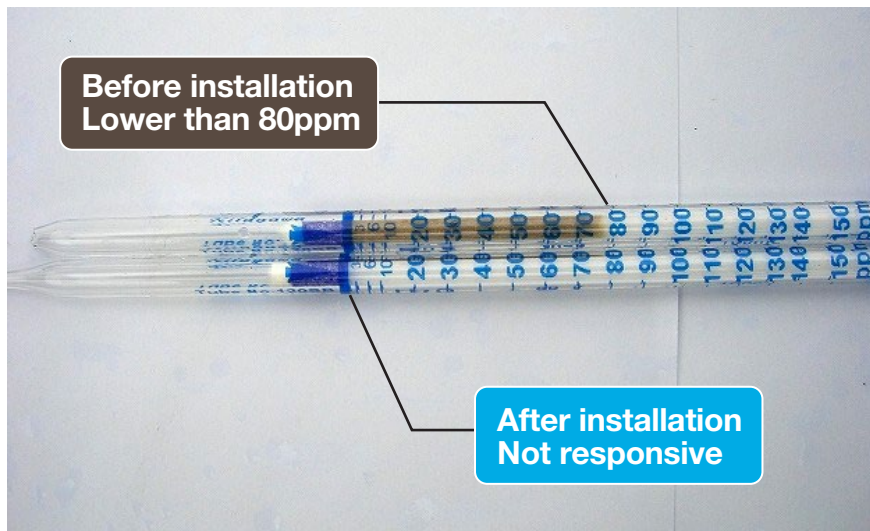
Bus storage yard, Osaka Prefecture Amount of industrial waste collected 180m ³ /year			
Item	Before introduction	After introduction	Amount difference
Cost of sludge collection (cost of cleaning)	2,400,000	320,000	▲2,080,000
Other expenses	600,000	300,000	▲570,000
Cost of power consumption	250,000	380,000	130,000
Bio and maintenance	0	240,000	240,000
One-year cost performance			▲2,280,000

■ Odor generation also prevented

Aquablaster diffusion pipe



Since this office also had a problem with odor, inspection was carried out with a Kitagawa gas detector tube system, and hydrogen sulfide at nearly 80ppm was detected before implementation.

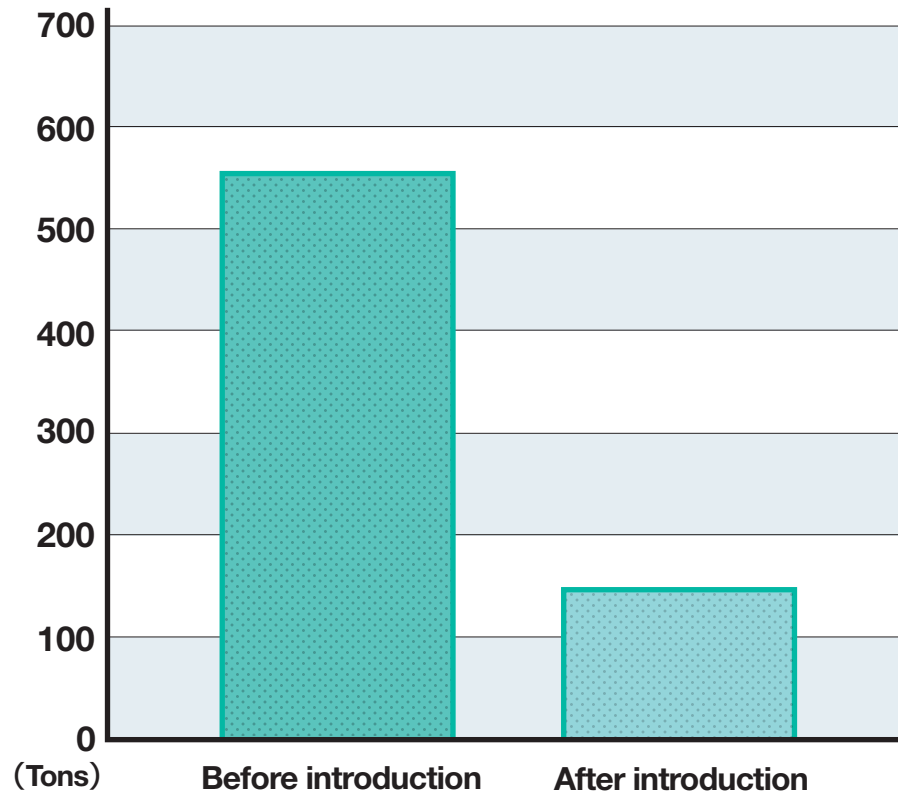


Before implementation, as shown in the above photos, hydrogen sulfide at nearly 80ppm was generated from the pit. However, after the installation of the Aquablaster diffusion pipe, an offensive odor source substance such as hydrogen sulfide completely ceases to be generated completely.

■ Contribution also to CO₂ reduction

Aquablaster diffusion pipe

Amount of CO₂ reduction 395t/year

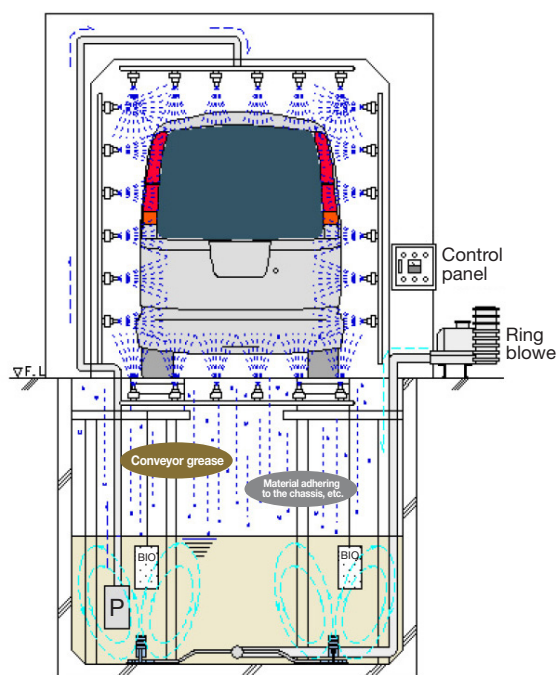


Since generated sludge and water contained mineral oils, they were treated by combustion method at an industrial waste processing factory. However, the collection cycle could be extended, successfully achieving a

reduction of CO₂ by nearly 400t per year.

Example of purification and maintenance of circulating water containing a lot of mineral oils

Aquablaster diffusion pipe



This is an example of circulating water purification applied to a production line for checking whether water gets into a vehicle, by spraying water from all directions, in the vehicle inspection process.

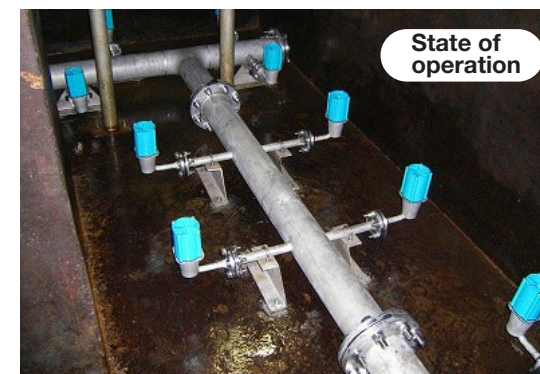
The life of circulating water extended from one week to a half year

Car factory, company D



Supplied: 1999/Since the installation in October, The Aquablaster diffusion pipe has been supplied to three locations in total as repeat orders.

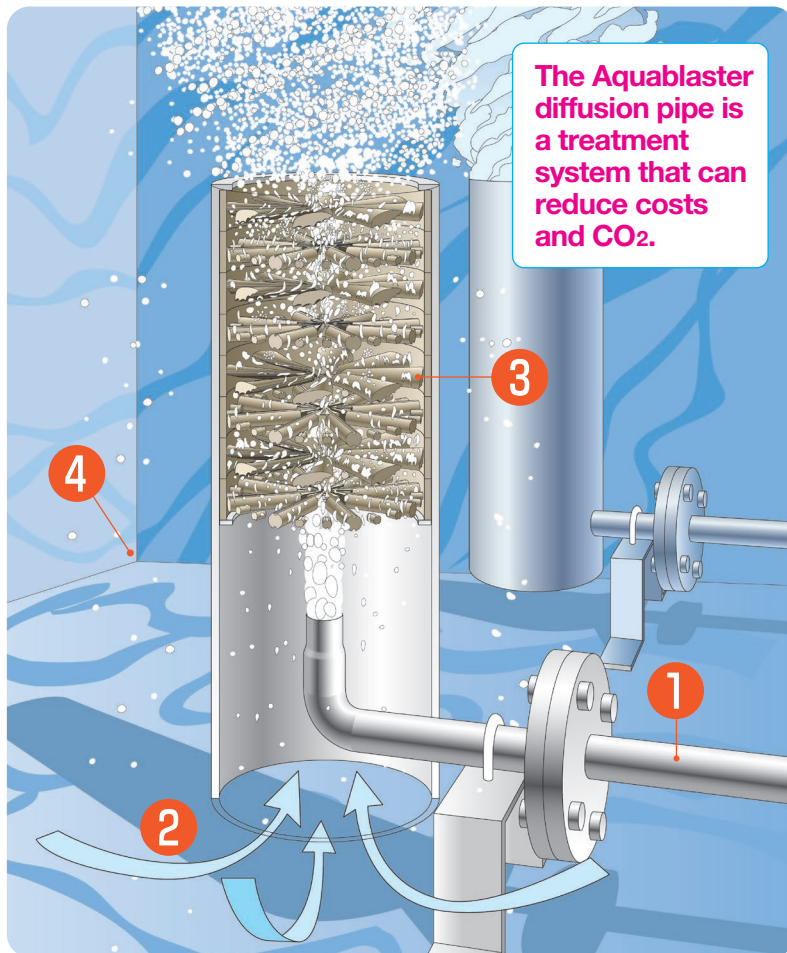
Car factory, company N



Supplied: October 2005/Since the installation, The Aquablaster diffusion pipe has been introduced to three locations in total as repeat orders.

■ Diffusion pipe Aquablaster mechanism

Aquablaster diffusion pipe



1 Air from the blower is emitted as a high speed air blast.

2 Water and sludge at the bottom are swept up by an air lift effect.

3 With special shaped fins developed by using fluid dynamics, air and water are vigorously mixed together to generate nano air bubbles and circulating currents in the tank.(Patent pending)

4 When circulating currents are generated, oxygen is also supplied to the corner sections at the bottom of the water tank, where the dissolved oxygen concentration does not increase easily.

5 By keeping the dissolved oxygen concentration at 2.0mg/L or more, microorganisms are activated maximally.

■ Advantages of introducing the Aquablaster diffusion pipe

Aquablaster diffusion pipe

The Aquablaster diffusion pipe is a treatment system that can reduce costs and CO₂.

Cleaning frequency reduction

Considerable cleaning cost reduction

Oil mud sludge reduction

CO₂ reduction through industrial waste reduction in volume

Use of recycled treated water

Water usage amount reduction

Labor saving

Labor cost reduction

Odor problem resolution

Work environment improvement

Compliance with laws and regulations

Contribution to compliance with CSR and ISO

Other wastewater treatment facility supply records

Aquablaster diffusion pipe



Waste plastic recycling plant (12 sets OEMed to Nikko)			
Unit mg/L	Raw water	Treated water	River discharge
BOD	2000	80	100 or less
COD	1600	70	100 or less
SS	2000	40	30 or less
N-Hex	200	1	5 or less



Food processing factory wastewater treatment			
Unit mg/L	Raw water	Treated water	Sewage discharge
BOD	450	5	300 or less
SS	430	4	300 or less
N-Hex	380	2	(Mineral) 5 or less



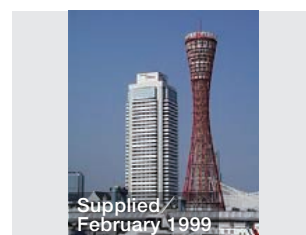
SHIMADZU CORPORATION Seta factory Kitchen & industrial wastewater treatment			
Unit mg/L	Raw water	Treated water	Sewage discharge
BOD	1200	85	300 or less
SS	800	80	300 or less
N-Hex	120	12	30 or less



Food waste recycling plant wastewater treatment			
Unit mg/L	Raw water	Treated water	Discharge standard
BOD	150	10	Water being circulated and reused as coolant water for machines
SS	100	10	
N-Hex	15	1	



Food processing factory wastewater treatment			
Unit mg/L	Raw water	Treated water	Value in the contract
BOD	2100	350	400 or less
SS	1500	200	300 or less
N-Hex	350	35	40 or less



Major hotel (modification work) Kitchen wastewater treatment			
Unit mg/L	Raw water	Treated water	Sewage discharge
BOD	680	78	200 or less
SS	500	57	200 or less
N-Hex	150	10	30 or less



Food processing factory wastewater treatment			
Unit mg/L	Raw water	Treated water	Discharge standard
BOD	1200	220	300 or less
SS	800	300	300 or less
N-Hex	400	20	30 or less



SHIMADZU CORPORATION Head office Kitchen wastewater treatment			
Unit mg/L	Raw water	Treated water	Sewage discharge
BOD	2000	100	200 or less
SS	2500	120	200 or less
N-Hex	250	15	30 or less



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