O Overview

Target verification technology/environmental technology developer	Oil-degrading-bacteria-adhered fixed-bed contact aeration method / Kondo FRP Industries Co., Ltd.			
Verification organization	Environmental Pollution Control Center, Osaka Prefecture			
(Conducted by)	(Environmental Management and Technology Center in Kansai)			
Verification-test period	Nov. 20, 2003 to Feb. 20, 2004			
Object of technology	a. Decomposition of the pollutants in oil-containing organic wastewaterb. Suppression of the generation of waste (including sludge) and foul odor			

1. Summary of the target verification technology



Principle Pollutants including animal and vegetable oils contained in kitchen wastewater are decomposed by highly active oil-degrading microbes (Super-H Microbes) adhered to a fixed bed of a special biofilter. After fluctuations in the flow rate in the regulation tank are controlled, the wastewater from a kitchen is processed in the biological treatment tank in which the adhered fixed bed is installed. The sludge sediment separated in the sedimentation tank is fed back to the regulation tank. The processed wastewater is discharged from the effluent discharge tank. The oil-degrading activity is kept constant through the periodic addition of highly active oil-degrading microbes.

2. Summary of the verification test

O Summary of the verification-test site



O Specification and processing capacity of the target verification apparatus

Classification	Item	Specification and processing capacity			
Summary of facility	Name/type	Oil-degrading-bacteria-adhered fixed-bed contact aeration			
	Traine/type	method (BN Clean system)			
	Size and weight	$4,000 \text{ mm} (W) \times 4,000 \text{ mm} (D) \times 3,000 \text{ mm} (H);$			
	Size and weight	approximately 5,000 kg			
Design conditions	Target substance	BOD, SS, pH, and n-Hex			
	Daily wastewater	48 m ³ /day at maximum			
	flow rate				
	Inflow period	10 hours			
	Hourly inflow rate	Average: 3.2 m ³ /hour			
	Influent-wastewater	(BOD) 800 mg/L, (SS) 600 mg/L, (pH) 5.8-8.6, and			
	quality	(n-Hex) 150 mg/L			
	Processed-wastewater	(BOD) 600 mg/L, (SS) 600 mg/L, (pH) 5.8-8.6, and			
	quality	(n-Hex) 30 mg/L			
	Drossesing mothed	Oil-degrading-bacteria-adhered fixed-bed contact aeration			
	r tocessing method	method (BN Clean system)			
Others	Chemicals used	Oil-degrading microbes (Super-H Microbes): 3.2 kg/month			



3. Verification-test results



Note 1: Median value of the removal rates determined daily: "(load in influent wastewater - load in processed wastewater) / load in influent wastewater"

Note 2: * indicates items the removal of which is not intended in the target verification apparatus.

Note 3: Number of pieces of influent-wastewater data: 22; number of pieces of processed-wastewater data: 22

O Items concerning environmental impact								
Item		Verific	ation result					
Amount of generated sludg	ge No withdrawal of excess sludge during the verification period							
Amount of generated wast	e	No generation of waste	during the verification period					
Noise		54 decibels (including environmental noise other than that from the						
Odor		Odor index: less than 10; odor intensity: 0 to 0.5 (6-level						
Odor		odor-intensity scale)						
O Items concerning used re	esource	es						
Item		Verification result						
Electricity consumption	1	114 kWh/day						
Wastewater treatment chem and other consumption	icals	Oil-degrading microbes (Super-H Microbes): 3.2 kg/month Bulking inhibitor: 1.0 kg (used only in the event of problems) Antifoam (solid): 0.4 kg (used only in the event of problems) Antifoam (liquid): 0.1 L (used only in the event of problems)						
O Items concerning operati	on and	l maintenance performance						
ç, p		Time and frequency of	Number and technical skill of the					
Control point		maintenance and	operators needed for operation and maintenance					
microbial preparation, instant adjustment of instruction and adjustment of instruction for adjustment of the processing conditions, inspection of water quality)	pection ments ent o and	140 to 170 minutes (average: 150 minutes) (Once per month)	periodic maintenance. Specialized knowledge and experience with operation and maintenance of the overall facility, instruments, and electric devices required.					
O Qualitative findings		T '	1.					
Water-quality findings	Influent wastewater							
Period required for startup		Not verified, as the facility	y exists and is in operation.					
	The facility generally operated normally during the verification period. However, malfunction of a flow-rate control pump (once), the large-scale proliferation of fungi, malfunction of a float switch (once), and other incidents occurred.							
Reliability of target verification apparatus	prolit incid	feration of fungi, malfunction o ents occurred.	f a float switch (once), and other					
Reliability of target verification apparatus Evaluation of the operation and maintenance manual	prolini incid	feration of fungi, malfunction o ents occurred. No particular pro	f a float switch (once), and other					

(Reference information)

All information on this page is provided by the environmental-technology developer on its own authority; the Ministry of the Environment and the verification organization are in no way responsible for the content of this page.

<u>O</u> Product	data							
Item			Description given by the environmental-technology developer					
Name/type		BN Clean system						
Manufacturer (distributor) name		Kondo FRP Industries Co., Ltd.						
	Tel/Fax		TEL: 06-6376-0810 FAX: 06-6376-0819					
Contact address	Website		http://www.kondoh-frp.co.jp					
	E-mail		info@kondoh-frp.co.jp					
Necessity of pre- and post-treatment		None						
Additio	onal facility			None				
Life of target verification apparatus		Approximately 10 years or more						
			Item ial cost	Unit cost	Quantity	Total		
			FRP water tank (Including materials and labor)		1	8,500,000		
			System parts		1 set	8,000,000		
			System installation work		1 set	2,000,000		
			Trial run and adjustment		1 set	500,000		
			Regulation-tank installation work			Separately estimated		
		Op	erating cost (month)			204,980		
Appro	ximate cost		Sludge disposal					
()	(yen)		Waste disposal					
			Electricity	1,166 yen/day	30 days	34,980		
			Water					
		Wastewater treatment chemicals			Included in *			
		1	Other consumables			Included in *		
			Maintenance and management subcontracting (month) *		1 set/month	170,000		
			Per m ³ of processed wastewater (assumed amount of processed wastewater: 1,440 m ³ /month)					

O Other information from manufacturer

* The cost of maintenance and management subcontracting includes costs for inspection of water quality, various parts, and consumables, preparation and submission of a management report, and others.