

Water treatment using custom-made microorganisms

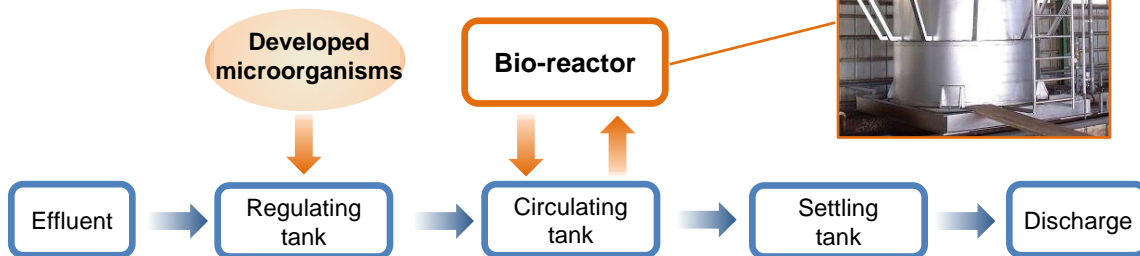
Excellent purification capacity makes it possible to treat even highly concentrated effluent! There is no need for dissolved air flotation in some cases.

Characteristics

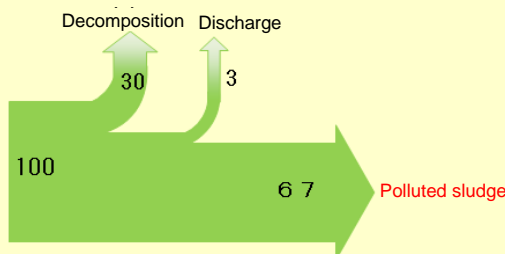
- We have developed an effluent purification method in which effective custom-designed microorganisms that can decompose specific individual pollutants contained in effluent are developed, bred and introduced to the site. Since microorganisms that are matched to the individual effluent are used, effluent management can be effective and yet inexpensive.
- Since existing facilities can be used, initial capital investment is low, resulting in high cost effectiveness. With its excellent purification capacity, this method gives a dramatic reduction in the volume of polluted sludge and thus cuts sludge collection costs, resulting in a significant reduction in disposal costs.
- This system purifies effluent by applying natural principles of purification. As the volume of polluted sludge is reduced, the volume to be disposed of (incinerated) decreases, resulting in a dramatic reduction in CO2 emissions. In addition, this system uses few flocculants and thus does not cause secondary pollution. It is an environmentally friendly system.

Overview (technological principle, mechanism, etc.)

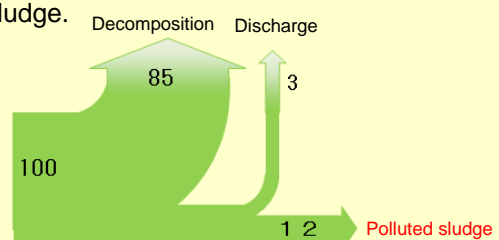
Effluent is purified by installing a microbial carrier tank (bioreactor) with an injection portion called a bio-jet tank in the activated sludge system and rooting effective microorganisms there.



In the active sludge process, a large volume of polluted sludge is generated.



Water treatment using custom-made microorganisms has a high decomposition rate, reducing the volume of polluted sludge.



Delivery record

Recent delivery record: [] shows characteristics of effluent.

(Japan)

- N metal processing factory in Osaka Prefecture
- S food processing factory in Nara Prefecture; 100 t/d [vegetable oils, animal oils and meat juices]
- N chemical factory in Hyogo Prefecture; 200 t/d [anti-fouling paint for ships (high salinity)]

(Overseas)

- R sauce factory in China; 300 t/d [seasoning (high salinity)]
- S sweet cooking rice wine factory in Thailand; 70 t/d [starch wastewater]
- Slaughterhouse in Singapore [highly concentrated protein, etc.]
- PN company petroleum refining factory in Singapore [mineral oil]
- A epoxy resin company in Thailand [COD11,300; high salinity]

Effect

- [Decomposition of vegetable oil]
Y oil manufacturing company - raw water BOD: 4,000 mg/L; water volume: 300 t/day; amount of polluted sludge generated: 10 t-ws/d
Oil content of raw water: 1,000 mg/L (maximum 11,000 mg/L)
↓
As a result of introducing new facilities, the amount of polluted sludge generated has been reduced to zero (no discharge into the sewage system). * Cost reduction: 50 million yen/year
- [Decomposition of raw starch]
B starch factory - raw water BOD: 2,000 mg/L; water volume: 200 t/day; amount of polluted sludge generated: 249 t-rs/month
↓
As a result of introducing pretreatment facilities, the amount of polluted sludge generated has been reduced to approximately 0.15 t-ws/month.
* Offensive odors generated before the introduction of the facilities have been eliminated and the amount of polluted sludge generated has been reduced by 99%. * Cost reduction after introduction: 12.93 million yen/year
- [Decomposition of mineral oil]
N metal processing factory - raw water BOD: 600 mg/L; water volume: 150 t/day; amount of polluted sludge generated: 338.4 t-rs/year
Oil content of raw water (mineral): 160 mg/L
↓
As a result of introducing new facilities, treated water BOD has been improved to 6.5 mg/L and oil content of the treated water (mineral) has been reduced to less than 1 mg/L.
Amount of polluted sludge generated: 45 t-ws/year = 87% reduction achieved
*Cost reduction from mineral oil treatment: 890,000 yen/year
- [Decomposition of sulfurous malodorous substances]
M seasoning factory - raw water BOD: 2,000 mg/L; water volume: 50 t/day; amount of polluted sludge generated: 1,470kg-ws/month
Oil content of raw water: 260 mg/L
↓
As a result of fluid carrier works + introduction of developed microorganisms + use of existing treatment facilities:
Amount of polluted sludge generated: approx. 37 kg-ws/month
* Offensive odors, which were generated before the introduction of the facilities, have been eliminated; cost reduction: approx. 5.8 million yen
- [Decomposition of 1,4-dioxane, etc.] [Effluent with high salinity]

Osaka Institute of
Environmental Life Science Inc.
Engineering Department

<http://www.osaka-institute.com/>

E-mail info@osk3.com

Address: 3-4-30 Masago, Ibaraki-shi, Osaka 567-0851

TEL +81(0)72-638-6553 FAX +81(0)72-638-3314