

Organic Excess Sludge Reduction System

Features

- Utilizes the self-oxidation of bacteria and reduces the generation of sludge, thus not requiring the discharge of sludge.
- The system employing PVA gel carriers operable with high loads.
- Combined with the membrane unit for water recycling.

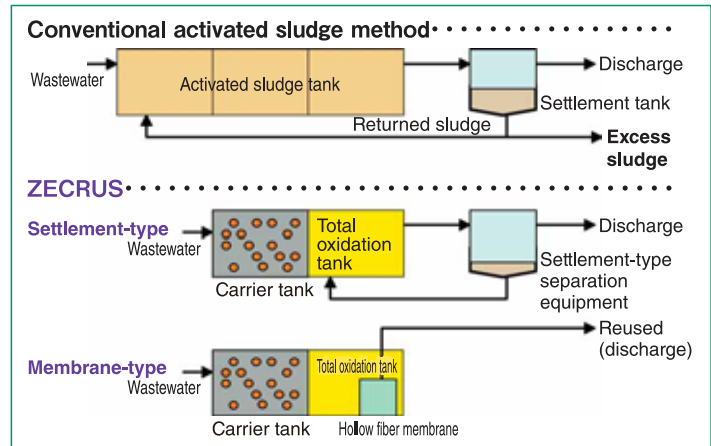
Overview

(Technical principles, actions, etc.)

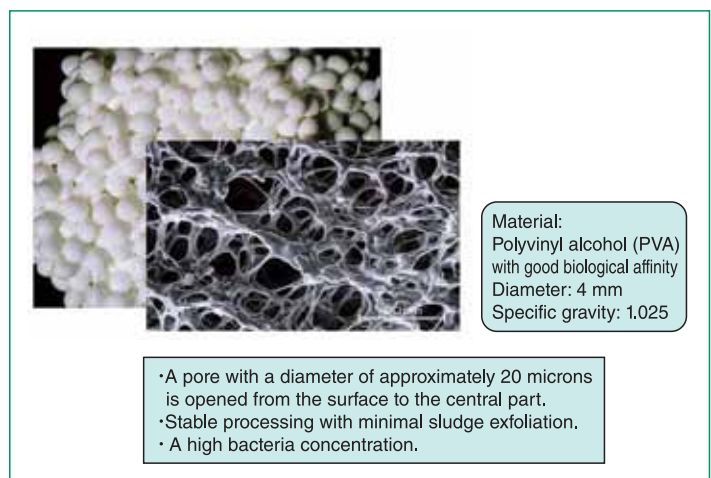
ZECRUS is a system to control the quantity of organic sludge. This system consists of the high-efficiency bioreactor that uses PVA gel, bacteria immobilization carriers made of polyvinyl alcohol (PVA) on the primary stage and the total oxidation tank on the secondary stage.

The bioreactor on the primary stage processes most of the biochemical oxygen demand (BOD) portion of the sludge load on the system so as to mitigate the quantity of BOD sludge in the total oxidation tank on the secondary stage. The system uses the principle of reducing the generation of organic sludge by changing the bacteria in the total oxidation tank into a starvation state and keeping the proliferation rate of the sludge and the extinction (self-oxidation) speed of the sludge equal.

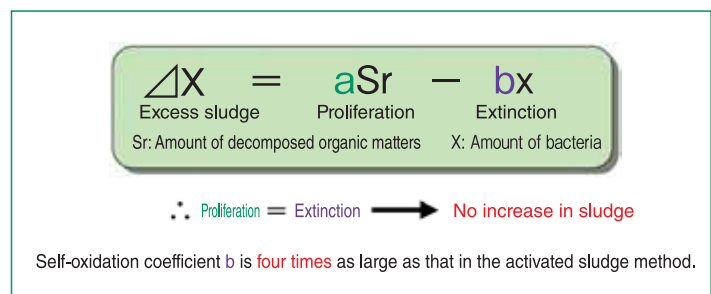
There are two methods to separate the sludge in the total oxidation tank, i.e., the use of immersed-type hollow fiber and the use of settlement-type separation equipment. The hollow-fiber membrane method has a merit of recycling the treated water while the settlement-type separation equipment has a merit of low energy cost.



Kuraray Aqua's excess sludge reduction system



PVA gel carrier



Sludge reduction(Natural metabolism of bacteria)

Effects

- The system employs the bioreactor where PVA gel carriers flow, thus making it possible to downsize the entire equipment.
- The carrier is excellent in the retention of nitrification bacteria and denitrification bacteria, thus making it possible to perform nitrogen removal processing as well.
- The system suppresses the generation ratio of organic sludge to almost zero, thus reducing the running cost.
- The system can be used to increase a capability improvement in existing activated sludge equipment.

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