

Employs micro-bubble aerator and ozone for water decolorization and reproduction.

Advanced Wastewater Treatment by Micro-bubble Aerator

Features

Ozone Oxidizing System

■ A system that combines the Micro Power-S micro-bubble aerator and ozone generator to make the high oxidative power to react instantaneously with matters perfectly.

■ Performs the advanced processing of wastewater (i.e., the decolorization of wastewater, the high-performance reduction of residual biological oxygen demand (BOD) and chemical oxygen demand (COD) of wastewater, and facilitate recycling of wastewater).

■ Pressurized Floatation Separation System with Micro-bubble Aerator Employed.

■ Micro Power-S micro-bubble Aerator generates ultrafine air bubbles at high-density which capture suspended solid (SS) substances strongly to make powerful floatation separation at high speed.

■ The pressurized floatation with micro-bubble of this equipment is twice as efficient as conventional floatation systems and so space saving that only half the installation space of conventional ones is used.



Micro Power-S



Pressurized Flotation Unit with processing rate of 35 m³/h.

Overview

(Technical principles, actions, etc.)

1. Ozone Oxidizing System

Ozone is attracted through the nozzle of the micro-bubble aerator, mixed with wastewater with special pump and mixer, and dissolved close to the saturation point in a high-pressure tank at the rate of 5 kg/cm².

The system utilizes ozone to decolorize wastewater, make COD reduce, perform the treatment of surfactant in wastewater, and remove residual organic matter efficiently. Furthermore, the powerful ozone effect makes it possible to purify wastewater for reuse as well.

The system performs the floatation separation of suspended solid substances (SS) reacted with the ozone and eliminates them as scum from the liquid.

2. Floatation Separation Performance for Pressurized Flotation Unit

The Micro Power-S micro-bubble aerator generates stable ultra-fine bubbles (0.1mm of average diameter) thus provide huge surface areas of air (or ozone). Generated high-density air bubbles capture condensed SS and perform the floatation separation of the SS at high performance.



Demonstration of ozone-employed decolorization of wastewater at business show



30-kW micro-bubble aerator (Shanghai's textile factory C)

- ① The system instantaneously generates ultrafine air bubbles that are uniform in size, and the automatic operation of the system linking with other systems is possible.
- ② The powerful floatation by ultrafine air bubbles save the amount of coagulants which is necessary for condensation of material to be separated.

Introductory Track Record

- A number of large-sized Micro Power-S micro-bubble aerator units (30-kW units) have been installed on Fabric-dye factory wastewater treatment in China. For the floatation-separation to remove colors and COD processing and recycle.
- Under an Official Development Assistance (ODA) project of the New Energy and Industrial Technology Development Organization (NEDO) for Vietnam in fiscal 2007, a pressurized floatation system by ultrafine air bubbles was installed at a beer brewery in Vietnam and technical instruction and assistance were given.
- A large number of Micro Power-S micro-bubble aerator units for pressurized floatation have been introduced to many food factories and dye factories in Japan.
- An ozone-employed decolorization system was exhibited at the Osaka Textile Machinery Show (OTEMAS), where a decolorization test of dye drainage was conducted. The system is demonstrated to recycle the wastewater into colorless and odorless water. It was proved that ozone provide to micro bubble aerator is effectively diffused and perfectly used for the reaction with waste materials.

Effects

- Enables ozone to react with the waste substances in water instantaneously and to attain high grade waste water treatment (i.e., the decolorization with high-degree BOD, COD, and n-hexane reduction) in a short time. Furthermore, the ozone as highly hazardous and corrosive gas will not be discharged due to complete consumption by reaction with the treating substances.
- The treatment of wastewater with ozone will provide reusable purified water. This make much profit by the reduction of the water uptake, especially in the area where the uptake of water is limited by low as in China.
- High performance of floatation-separation enables great energy and cost saving as a result of the remarkable reduction in a quantity of coagulant necessary for separation. The reduced coagulant also result in the reduction of final sludge produced after wastewater treatment and save the cost for sludge processing.
 - ◆ Ideal for enterprises that cannot attain restrictions (e.g., CODcr and n-Hex restrictions).
 - ◆ Greatly reduces the use of coagulant in use. (Example: Shanghai's textile's factory C succeeded in halving the quantity of coagulant.)
 - ◆ The linkage of micro bubble aerator with ozone generator enables recycling of wastewater.

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Applicable field
Food Factories, Discharging Wastewater, Paper Factories, Paper Pulp Factories, Chemical Factories, and Sewer Disposal Factories

Water
Pollution

Energy Saving

New Energy

Natural Energy

Energy Recovery

Others

Air
Pollution

Soil
Pollution

Measures against Global Warming

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