

Active return to nature through the innovative effects of Biofringe → Great potential for the future The Best One in the World

“Swim-bed Biofringe”, A Contact Material for Water Treatment

Features

- Made possible through the advanced technology of the textile industry, Biofringe is a contact material that performs beyond expectations.
- Biofringe’s unique structure makes it possible to process waste water containing high amounts of suspended solids (SS)
- The high and stable sludge retention performance provides an innovative effect never achieved before.

Overview

(Technical principles, actions, etc.)

(i) Biofringe is capable of processing wastewater containing high levels of suspended solids, and was adopted in the Emergency Project for the Great East Japan Earthquake to restore the Minami-Gamo Water Treatment Center in Sendai City. Despite the BOD volumetric loading as high as 13kg/m³ per day (material loading of 17kg/m³ per day), the system is operating stably (Figure 1, Minami-Gamo Water Treatment Center)

(ii) The excellent suspended solid treatment performance of Biofringe eliminated the suspended solid treatment process in pulp and paper wastewater treatment. The treated water is released into the Oh-i river and the system has been operating trouble-free for 10 years.

(iii) The construction and operation costs for the Biofringe-based BF-AO system is lower than that the high-performance ASP (Active Sludge Process), buoyant carrier or MBR systems, and the installation space is smaller (Figure 2 Comparison of the costs of each system)

Future potential

- Biofringe’s high retention capacity makes it possible to treat low-strength wastewater in a short period of time. It is applied to advanced water treatment.
- Applying the results achieved at the Minami-Gamo Water Treatment Center, this disaster-prevention type wastewater treatment plant applies both standard activated sludge treatment equipment and Biofringe method during normal operations, while employing the Biofringe method only in emergencies (Fig.3).
- The system meets the stringent water quality standard of 1A (BOD: 5 – 10 mg/L) of China, and the cost is half that of Chinese systems. The strong competitiveness and innovative effect make the system one of the major water treatment materials.

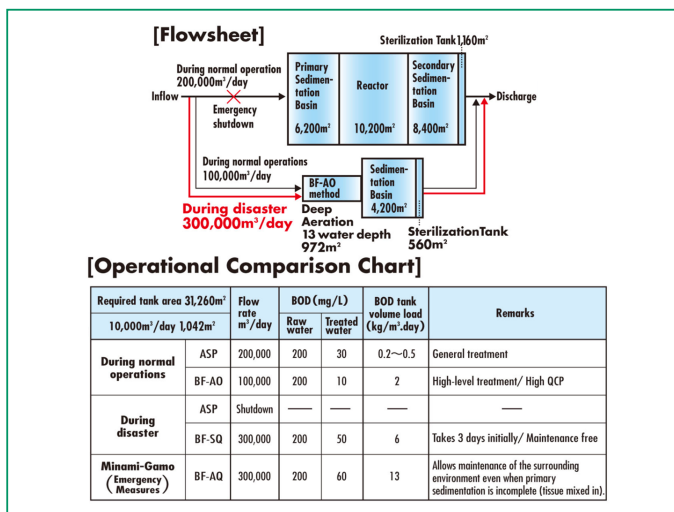


Fig. 3 Disaster-Prevention Type Water Treatment Plant

Introductory Track Record

- Biofringe has been introduced to at least 450 sites in Japan (the only country in the world where that number of systems has been introduced.)
- BIOFRINGE is also being delivered globally to countries overseas, including Taiwan, China, Malaysia, the United States, and India.

Effects

- ⊙ Dramatically increases the capacity of activated sludge aeration tanks. Downsizes newly installed tanks, and increases the capacity of existing tanks without installing extra aeration tanks.
- ⊙ Eliminates the need for pretreatment using a pressure flotation tank or other equipment, and substantially reduces the sludge volume.
- ⊙ Resistant to load fluctuation, easy-to-control operation. The service life of Biofringe is as long as 15 years or more (with the 10-year warranty), and the system offers maintenance-free operation once introduced.
- ⊙ The system ensures complete nitrification and allows nitrification to progress under a certain level of BOD. Such properties allow the reduction of the nitrification tank capacity.
- ⊙ BIOFRINGE used in pretreatment before the anaerobic process enables the processing of recalcitrant substances and SS that are difficult to process using the normal activated-sludge method.
- ⊙ In addition to materials, our company also provides technical consulting services as an expert of various water treatment solutions.

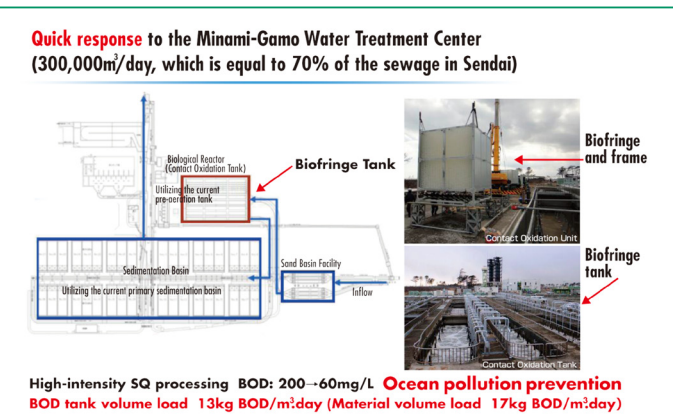


Fig. 1 Emergency Plan for Great East Japan Earthquake/Tsunami Restoration (Minami-Gamo Water Treatment Center in Sendai)

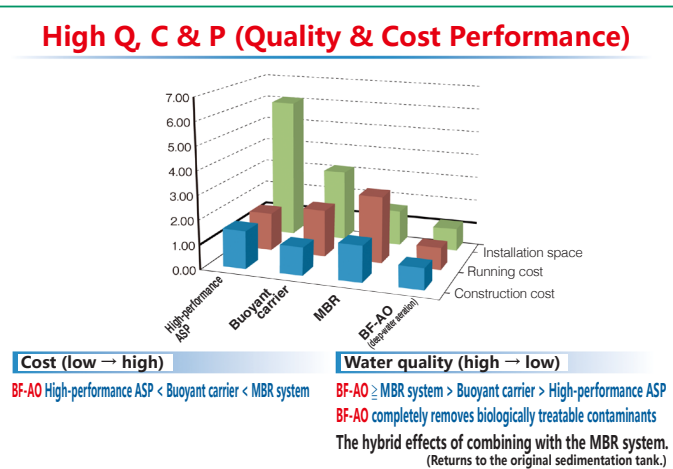


Fig. 2 Comparison of cost and space requirements

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※Note: This publication introduces examples of technologies and products believed useful towards solving environmental and energy issues. In no way does it constitute guarantees concerning their transfer or sale.

Applicable field
(i) Wastewater from food, electronic, chemical and textile manufacturing plants
(ii) Wastock and other wastewater.
(iii) Sewage wastewater from agricultural communities. (iv) Riverlake restoration

Water

Energy saving/Energy recovery

Energy storage/Energy creation

New energy

Waste disposal/ Recycling/ Resource saving

Air

Soil

Other

ENERGY