

第一名
1st place

生態淨水系統 Vita Beads

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vita 以維他命錠的概念作為發想，以微小劑量觸發大自然的良性循環，讓水中生態健康強壯。系統以模組化的方式建構，將獨立的單元體vita固定在防鏽鋼板結構上，讓污水流入vita內將好菌帶出，達到淨化水質的效果。鋼板可依場域而變換造型，彈性施工的特色讓vita可置於邊坡、河道等不同水域中。施工過程簡易且方便安裝及拆卸的設計，在維修時只需要將vita與鋼板固定的螺絲旋出即可，具有極大的方便性。vita生態淨水系統涵蓋環工水質淨化的三級處理，有攔污柵並在底部設置沈砂池保護微生物固定化擔體；微生物固定化顆粒包埋有蘇力菌可以抑制纖維性壞藻；異營菌可以分解有機污染物；硝化菌、脫硝菌及厭氧氨氧化菌使水中氮源釋出返回大氣，降低水體鹽度；綠藻顆粒可以攝取水中的磷，並作為水中生態系的食物來源。這些顆粒將作為菌母，不斷地將裡面的好菌好藻釋放到水體，維持水中好的生態，且由生物可分解的聚乙烯醇所構成，對環境友善。

The idea of Vita originates from vitamin tablets. With only a small dose, it can trigger a virtuous cycle of nature, and improves the water quality and creates a healthy ecology. The System is built with modular design; the independent units, vita, are fixed on the rustproof steel plate. When sewage flows into Vita, it will filter out the good bacteria and purify the water. The shape of steel plate can be arranged according to the field. The characteristics of its variable installation ways allows Vita to be placed in different areas such as slopes and rivers. The construction process is simple (convenient to install and disassemble). Besides, you only needs to disassemble the steel plate during maintenance. Vita ecological water purification system includes the tertiary treatment. There is a trash rack installed on top and a grit chamber at the bottom to protect the microorganism-immobilized cell beads.

The microbial cell beads includes many kinds of microorganisms, e.g. Bacillus can be used to inhibit the fibrous algae, which causes eutrophication. The heterogeneous bacteria can decompose organic pollutants: nitrifiers, denitrifiers and anammox. Moreover, it can release nitrogen gas back to the atmosphere and reduce the salinity of the water. The green algae can consume phosphorus in the water and became the food in the aquatic food chain. These microbial cell beads are the sources of microorganisms, which can constantly release good bacteria and algae into the water, maintaining the aquatic ecology. And Vita is consist of biodegradable polyvinyl alcohol, which is environmentally-friendly.



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vita 生態淨水系統

水中的維他命錠：讓生態更強壯健康



包埋式微生物固定化技術



顆粒內包埋有蘇力菌、硝化菌、脫硝菌、綠藻、厭氧銨氧化菌、異營菌等顆粒

硝化菌、脫硝菌：代謝優養化所需要的氮源轉化為氮氣

蘇力菌：抑制優養化的藻類、藍藻類

綠藻顆粒：在生態變成正向時，提供食物來源

可快速
啓用

菌株
多樣性

高度
穩定性

vita 生態淨水系統

水中的維他命錠：讓水質更強壯健康

產品特色

vita以維他命錠的概念為發想，如同水中的維他命讓水質健康強壯。以模組化的方式，將獨立的單元體vita固定在防鏽銅板結構上，讓汙水流入vita內將好菌帶出，達到淨化水質的效果。

銅板可依場域條件不同而變換造型，彈性施工的特色讓vita可置於邊坡、河道等不同水域中。

施工過程簡易且方便安裝及拆卸的設計，讓維修替換時，只需要將vita與銅板固定的螺絲旋出即可，具有極大的方便特性。

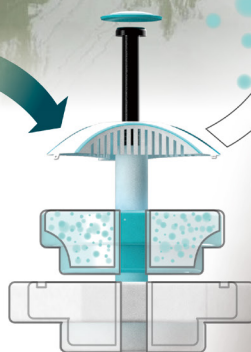
適用場域
彈性大

模組化
結構

安裝
簡易便利

包埋式微生物固定化技術

Vita生態淨水系統涵蓋環工水質淨化的三級處理，有攔污柵並在底部設置沈砂池保護微生物固定化擔體，微生物固定化顆粒包埋有蘇力菌可以抑制纖維性藻類，包埋有異營菌可以分解有機污染物，包埋有硝化菌、脫硝菌及厭氧銨氧化菌使水中氮源釋出返回大氣，降低水中鹽度，包埋有綠藻顆粒可以攝取水中的磷，並作為水中生態系的食物來源。這些顆粒將作為菌母，不斷地將裡面的好菌釋放到水體，維持水中好的生態。微生物固定化顆粒是由生物可分解的聚乙烷醇所構成，對環境友善。



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vita Ecological Water Purification System

The vitamin that purifies water and restore the healthy ecology

Product specialty

Vita is developed by the concept of eating vitamin tablets for health. it's the vitamin that purifies water and restore the healthy ecology. The System is built with modular design; the independent units, vita, are fixed on the rustproof steel plate, and the sewage flows into the vita and brings out the good bacteria dispersed in the sewage for further biodegradation. The shape of steel plate can be arranged according to the field. The characteristics of the variable installation ways allows the vita to be placed in different waters such as slopes and rivers. The construction process of Vita is simple and is convenient to install and disassemble. You only need to screw out the screws fixed by vita and steel plate during maintenance.

usable in all kinds of area

modularized structure

Immobilized microorganism mounting technology:

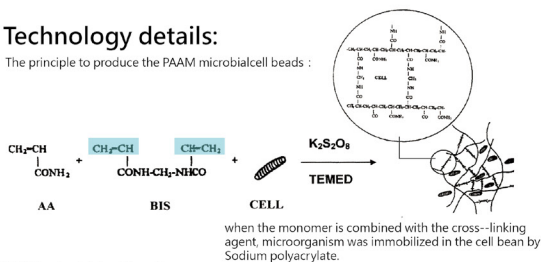
The vita ecological water purification system contains the three-stage wastewater treatment. There is a trash rack installed at top and a grit chamber at the bottom to protect the microorganism-immobilized cell beads. The microbial cell beads are embedded with many kinds of microorganisms, e.g. Bacillus can be used to inhibit the fibrous algae, which causes the eutrophication. The heterogeneous bacteria can decompose organic pollutants; nitrifiers, denitrifiers and anammox can release nitrogen gas back to the atmosphere and reduce the salinity of the water. The green algae can take up phosphorus in the water and serve as food for aquatic food chain. These microbial cell beads will act as the sources of microorganisms, constantly releasing the good bacteria and algae inside into the water, maintaining a good aquatic ecology, and are consisted of biodegradable polyvinyl alcohol, which is eco-friendly.

vita Ecological Water Purification System

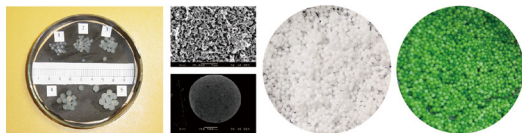
The vitamin that purifies water and restore the healthy ecology

Technology details:

The principle to produce the PAAM microbial cell beads:



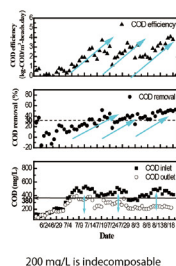
PAAM microbial cell beads:



Customer verification - COD

Target : advanced processing of factory emissions
Requirement: cod<380mg/L
When the COD of the water is above 400±50 mg/L, The removal rate of COD will be over 30%. If the unit load is about 2.79...(3.2 Airlift), it means the system has been operating over 2 years.

The maximum amount of removal:1.75kg/m³ tank-d
Rouse et al. (2005): 0.96 kg/m³ tank-d
Kuraray DM: 0.3 kg/m³ tank-d



The analysis of our technology:

The disadvantages of the Immobilized microorganism mounting technology

1. The process of bacteria cultivation is too long and only strong ones survives. If the environment is changed, the efficiency is reduced.
2. The movable cells are damaged easily if they're made by plastic or foam the Immobilized microorganism mounting technology is able to save high concentration microorganism and increase the efficiency of the process.

Our technology of Immobilized microorganism is the only high-end technology that has high Efficiency, variety and stability



Moving Bed

the mounting technology helps sludge reduction 4000 m²/m³ can be merged with MBR

Prevention of Eutrophication

Immobilized Microorganism Beads for BNR in field
Bacteria: Thiophaera pantotropa, ANAMMOX, Bacillus
Algae: Nannochloropsis oculata HSW-1

