

# 氣味控制系統

## Odour Control Facilities

### 生物滴濾除味系統

### Biotrickling Filter Deodourization System

沙田污水處理廠使用的氣味舒緩措施，是全港首個採用了較為環保的生物滴濾除味技術來進行除味的系統；其好處是操作簡單，管理容易，營運費用低和處理效果穩定等等。本廠的生物滴濾除味系統主要由氣味收集系統、除味風機、生物除味塔、灑水及營養補充系統四部分構成。第一階段的工程主要是針對污水入口井安裝一套處理風量為每小時25,000立方米的除味系統，並於2008年7月建成。系統的運作效果至今相當理想，氣味的主要成分硫化氫（H<sub>2</sub>S）其除去率平均在99%以上。

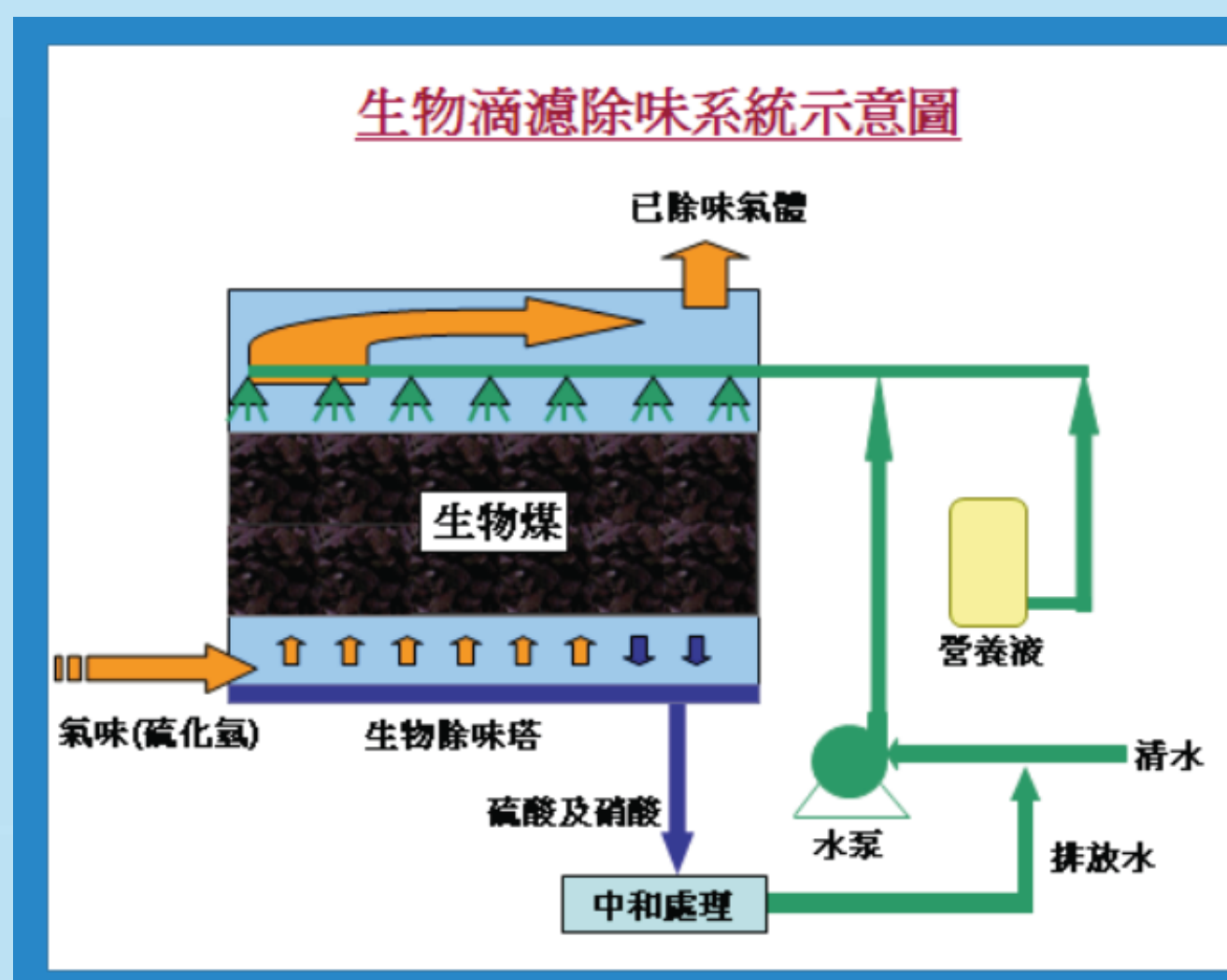
The odour mitigation measures at Shatin Sewage Treatment Works is the first deodourization (DO) system in Hong Kong utilizing the environmental friendly biotrickling filter technology to remove the odour. The advantages of this technology are simple operation, easy maintenance, low operation cost and stable treatment performance, etc. The system consists of odour collection system, odour extraction fan, biological DO tower, irrigation and nutrient supplementary system, etc. In the first phase of the project, a new DO system that can handle 25,000m<sup>3</sup>/h air flow rate is installed at the inlet works. The construction and installation work is completed in July 2008. It has provided with excellent performance since its commissioning. The average hydrogen sulphide (H<sub>2</sub>S) removal efficiency is above 99%.



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### 簡介 Introduction

- 空氣中的硫化氫和氧氣接觸到填料表面濕潤的生物膜而被溶解。
- 溶解的硫化氫被棲息在填料的微生物而吸收、氧化和分解，成為二氧化碳、水和硫酸、硝酸等物質。
- 灑水能帶走這些物質，得以保持適合微生物生長的环境。
- The hydrogen sulphide and oxygen in the air are dissolved in the moisture and diffused into the biofilm
- Dissolved hydrogen sulphide is oxidized, decomposed and absorbed by the microorganism. It becomes the carbon dioxide, water and sulfuric acid, nitric acid, etc.
- Irrigation can wash away these substances and maintain the favourable environment for the microbial growth.



生物煤 BIOCOAL

### 生物滴濾除味系統的特徵

### Characteristics of Bio-deodourization System

- 由於利用微生物的關係，產生二次污染物的問題相對輕微。
- 系統只需適量的灑水以保持填料中微生物的活性，及少量電力以維持除味風機的運行。
- 生物除味裝置的構造簡單。操作及維修都比傳統的除味裝置簡單和容易。
- 採用了由天然炭素加工而成的生物煤作為填料，其特性是多孔、保水性強、有良好的通氣和透水能力，特別適合微生物生長，其天然炭素的性質也使生物煤對微生物有很好的親和性，此外，微生物在生物煤表面形成的生物膜，能有效提供穩定的處理效果。
- The utilization of microorganism generates insignificant secondary pollutant.
- The system requires only suitable irrigation to maintain the activity of the microorganism in packing media. In addition, energy consumption of the air collection fan is very low.
- The structure of Bio-deodourization is simple. The operation and maintenance is relatively easy when compared to conventional deodorization system.
- BIOCOAL is perforated carbon-containing media specially developed for the bio-deodourization system. Characteristics such as high porosity, good moisture retention, high air and water permeability, etc. are very suitable for microorganism to inhabit. Because of the natural carbon containing property, BIOCOAL has very good affinity to microorganism. In addition, the formation of biofilm on the surface of BIOCOAL enables it a stable treatment performance for deodourization.

