

# Biotrickling Filters:

*For odour control*



Hydrogen Sulphide (H<sub>2</sub>S) and other substances with offensive odours are produced naturally when organic matter breaks down under anaerobic conditions. Such conditions cannot be avoided in processes such as waste water treatment, waste recycling and other industries associated with collection and processing of organic material and in these large volume processes the gasses can also be a health hazard.

The CSO Biotrickling filter is designed to provide the ideal conditions for sulphur reducing bacteria and others to thrive. A media bed provides a home for the bacteria and gives good mass transfer of H<sub>2</sub>S gas and other compounds from the gaseous phase to the liquid phase where the bacteria can easily consume them.

This is achieved by trickling water from the top of the vessel containing the media bed, counter-current to the air entering from the bottom of the vessel. The tortuous route that the air is forced to take brings it into contact with the bacteria film living on the very large surface area. Also, the contact with atomised water as it travels downwards under gravity and over the surface of the medium, causes the gaseous compounds to dissolve in the water giving the bacteria additional access to them. The water can be re-circulated to the top of the filter by pump or simply sent to drain.



▲ Biotrickling filter installed for Dwr Cymru/Welsh Water

- The vessel is constructed from press-moulded GRP or GRP reinforced Polypropylene (also available in HDPE as shown)
- For most applications the media bed of choice is Lava rock (pumice)
- For high H<sub>2</sub>S levels the media is a synthetic material
- The preferred form of irrigation is final effluent water from the waste water treatment.
- Alternatively, a re-circulating system with bacteria and/or nutrient inoculation can be used
- Relatively low operational cost
- Media lasts 10-20 years
- 90-99% removal of H<sub>2</sub>S
- Relatively low maintenance
- Used in combination with dry scrubber for VOC removal

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