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safety-critical plastic engineering

DATA SHEET

# BIO- TRICKLING FILTERS



Bio-Trickling Filters are biological filters using either organic or in-organic material as the media material on which micro-organisms can grow in a thin bio-film. These units offer a high efficient long term sustainable odour removal solution.

The units are available as either:

- Rectangular modular built using moulded GRP panels.
- Vertical cylindrical built units using GRP reinforced plastic.

Pumice (lava rock) is often the choice of media material as it naturally provides a large surface area on which micro-organisms can grow in a thin bio-film in combination with a relatively low density of the material itself. The latter characteristic limits the overall weight of the filter, while the large surface area increase filter removal efficiency. The micro-organisms in the bio-film break down the odour components in the air (e.g. hydrogen sulphide). For the bio-filtration processes to occur the micro-organisms have to be provided with sufficient oxygen supply as well as water and nutrients for cell growth.

The contaminated air enters the filter at the bottom of the filter and passes in an upward direction through the filter. Water is delivered to the top surface of the Bio-Filter and trickles down over the lava rock to the bottom, where it is collected.



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The irrigation prevents a dry-out of the active bacteria in the bio-film and ensures a constant pH value in the filter and at the same time the makes nutrients available to the bacteria. The percolating water collected at the filter bottom contains odour components as well as sulphuric acid from the biological oxidation of hydrogen sulphide.

Where possible the indigenous filtered final effluent stream as a once through pass is recommended as the irrigation solution.

- > **Controlled irrigation.**
- > **A regular supply of nutrient(s).**
- > **A supply of sufficient oxygen.**

Often used in conjunction with a Dry Media (Carbon) Polishing Unit to efficiently cope with the fluctuations in odour levels.



To find out how Roperhurst can support your project email [enquiries@roperhurst.com](mailto:enquiries@roperhurst.com) or call **+44(0)1446 732555**



Roperhurst Limited  
Ty Verlon Industrial Estate  
Cardiff Road, Barry CF63 2BE

Tel: +44 (0) 1446 732 555  
eMail: [enquiries@roperhurst.com](mailto:enquiries@roperhurst.com)  
[www.roperhurst.com](http://www.roperhurst.com)

