



aquatec

# Odour Control Solutions

Over 45 Years Experience 4  
Over 1000 Installations Globally 4  
Local Engineering 4

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# Leading Innovation In Air Emission Abatement Technologies

Founded in 1991, BIOREM® is a global clean technology engineering company with one objective: engineer, design, manufacture and distribute the most innovative and effective air emissions abatement technologies in the world.

As a leader in environmental solutions, our engineering teams have installed more than 1,200 projects worldwide. We specialize in tackling the exceptionally difficult problems of odour, volatile organic compounds (VOCs), and hazardous air pollutants, then engineering innovative solutions for the lowest life cycle cost of any technology.

BIOREM offers a lifetime commitment that our engineered systems will solve your air emissions and odour control problems. At the core of our business strategy is to be your trusted partner. This means you can rely on BIOREM for any project, any size, anywhere and be certain you have the best available technology and support to solve your most difficult challenges.

## Engineering the Difference

Superior physical, chemical and biological solutions that effectively and reliably control air emissions require advanced engineering knowledge and expertise. This is why all BIOREM teams are multidisciplinary units comprising biological, chemical, environmental and mechanical engineers and scientists.

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# BASYS™ and BiofiltAIR

## How Biofiltration works?

Natural processes and innovative engineering combine seamlessly to create BIOREM's biofilter solutions. Our systems optimize fixed-film biological reactors to address a wide range of contaminants. Specific microbial colonies are immobilized on the engineered surface of a medium or packing. Odiferous compounds or hazardous air pollutants are transferred into the biofilm where they are used by the microbes as a food source and converted to harmless byproducts such as carbon dioxide and water vapour.



Since all air is not created equal, BIOREM's design team collaborates closely with every customer to develop the right preconditioning steps that may be required to ensure long term trouble free operation of the biofilter. Whether it is temperature adjustment via heating or cooling, or the removal of particulates and aerosols, our multi disciplinary team of experts is here to assist you in selecting the right equipment.

BIOREM's innovative biofilters have revolutionised how contaminants can be treated. Our engineers and microbiologists have developed biofilters that have a smaller footprint and use significantly less volume of media.

The unique engineered properties of our biofilters means increased reliability while reducing energy consumption. The biofilters resistance to degradation ensures longer lasting life and lower operating costs overall.

The BASYS suite of solutions

are biological air systems modularized for small air flows. Systems range from small skid mounted packages for 100 CFM up to a maximum size of 6000 CFM for a single unit. Larger airflows can be accommodated with multiple units operated in parallel or graduating to the BiofiltAIR product line.

*With no odour complaints since this plant's commissioning, its BIOREM system ensures they are a better neighbor and still run at peak efficiency.*





# Biogas Sweetening

## How Does Biogas Sweetening Work?

The BIOREM Biogas Sweetening system represents the culmination of decades of fixed film bioreactor development for the removal of hydrogen sulfide from landfill gas and other methane gas mixtures.

Designed as a single or multipass biotrickling filter, the BIOREM Biogas Sweetening system utilizes special bacterial species tailored for the removal of H<sub>2</sub>S in oxygen deficient atmospheres.

The gas mixture is forced into intimate contact with a specially selected, high porosity media and the hydrogen sulfide is solubilized into the biofilm. Special sulfur degrading bacteria use the H<sub>2</sub>S as a food source and converts it into elemental sulfur and sulfate.

These processes do require a small amount of oxygen to have optimal destruction of the H<sub>2</sub>S. BIOREM injects a small percentage of air upstream of the reactor to be mixed with the raw gas prior to entry into the system.

Why Should I use a BIOREM Biogas Sweetener?

- 100% biological process. Harness nature's power to reduce your costs.
- 100% safe. Safety features ensure long term trouble free operation.
- 100% less consumables. This process neither consumes caustic soda nor requires frequent media replacement.



# MYTILUS™ Biotrickling

## How Biotrickling Filters Work?

Mytilus Biotrickling filters are fixed film biological reactors. A variety of microbial species are immobilized on the surface of various packings and encouraged to grow using specific air borne contaminants as their primary food source.

The Mytilus system works by conveying foul air into the biological reactor and forcing intimate contact with specially selected media holding the cultivated microbial colonies. Phase transfer of the gaseous contaminants occurs at the biofilm and is aided with either continuous recirculation fluid or intermittent water addition. Once the contaminant has transferred into the moisture layer, bacteria are able to oxidize the compounds into harmless byproducts.



BIOREM's engineered biotrickling filters are the perfect combination of low life-cycle cost, environmental sustainability and high efficiency in a small footprint. They are designed for a variety of applications where the air borne contaminants are water soluble. Examples of this are for the removal of hydrogen sulfide at waste water treatment facilities or ethanol from industrial processes.



With a countless range of structured and random packed medias to suit the specifics of even the most challenging of municipal or industrial problems, Mytilus biotrickling filters are used around the world. BIOREM offers state-of-the-art modular standard systems as well as fully customized rectangular, cylindrical or field-erected systems.



# SYNERGY™ System

## When failure is not an option.

For the highest degree of performance and reliability, the BIOREM synergy system is recommended. It's used when contaminant type and loading are severe and require multiple stages to treat effectively over the long term. The synergy system will employ several stages of treatment working in tandem to ensure that the overall performance is greater and more reliable than the individual components. These stages may be several biological reactors in series, or may also incorporate physical and chemical technologies to address specific contaminants and needs. The BIOREM engineering team will determine what synergy multi-stage system is required to give you the results you require.

The first step of the synergy

system is often a pretreatment stage to remove excessive concentrations of specific contaminants. The removal of these contaminants allows secondary treatment stages to focus on the remaining contaminants- providing a high degree of treatment efficiency. These latter stages are often referred to as the polishing stage(s).



## Engineering Innovation In Air Emission Abatement





## After Sales Service

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### Service Warranty

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Aquatec are committed to providing full after sales service, support and long term warranties on all components.

### Technical & Product Support

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Call 1300 088 555

### System Maintenance Management

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Aquatec's nationwide network of accredited maintenance providers cover urban and rural areas with a same day response policy.

### Power Failure Logistics

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Aquatec's Power Failure Logistics services provide an active management solution for treatment plants, Councils and Water Authorities.

### Environment

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Aquatec are committed to sustainability. This publication was produced using carbon neutral & FSC® certified paper.



## Water Innovation Partners

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