

DECENTRALISED SEWAGE



Low energy, low sludge onsite treatment

Above ground BioGill bioreactors turbo charge nutrient removal for sewage.

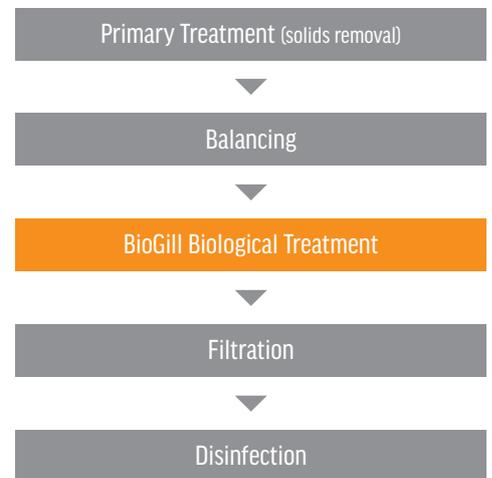


WATER. SCIENCE. NATURE

BioGill bioreactors are the perfect technology to supplement under performing systems or as a complete substitute for the biological treatment in decentralised and municipal sewage systems. The technology can easily increase the efficiency and durability of a sewage treatment process, at low cost and low energy.

Ideal for treating sewage from residential and commercial buildings, restaurant centres, resorts and small communities, BioGill technology is based on a key premise of concentrating and maximising microbiology. The result is a biological treatment process for sewage treatment that is highly effective at reducing BOD, COD and nitrogen, at low cost and low energy.

With primary treatment upstream to remove solids, BioGill bioreactors are ideal for the biological secondary stage of the sewage treatment train.



BIOGILL BENEFITS



Effective treatment of high soluble BOD/ COD



Simultaneous Nitrification/ De-nitrification



Easy to operate



Low sludge output



Low aerosols/ odour



Low energy



Natural and eco friendly

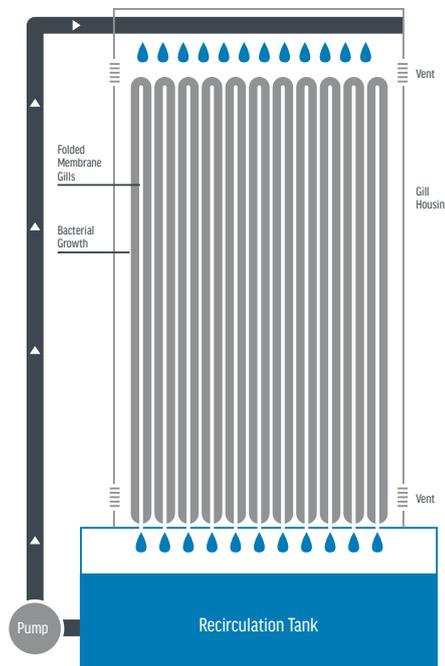
HOW BIOGILL WORKS

At the technology's core is a uniquely designed Nano ceramic membrane, or "gill", that provides the ideal support media to grow a thick and healthy treating biomass. As the biomass on the membrane is suspended, with one side receiving the high nutrient waste stream and the other an abundant air supply, growth and metabolic performance is maximised.

The patented membranes are arranged in multiple, suspended vertical loops with water delivered to the top of each loop. Wastewater flows down the surface of the gills where the metabolic activity of the bacteria generates a convective air flow, moving upward in the air side between each set of loops. No blowers or aerators are used to provide oxygen for the biomass.

Compared with other aerobic wastewater treatment processes, the BioGill bioreactor offers more efficient, above ground aeration of organic material in the waste stream. BioGill membranes can achieve biomass density as high as 50,000 mg/L or better.

This loading of microorganisms, Nature's best recyclers, turbo charges nutrient removal from sewage, leading to optimum nitrogen and soluble BOD/COD reductions.



Suspended biomass vertically supported and surrounded by oxygen – a key feature of the BioGill technology.



BioGill bioreactors were retrofitted to an existing STP in Manila to improve BOD reduction and reduce energy consumption.

RESULTS

BioGill bioreactors are ideal for the aerobic biological stage of treating sewage. Expected treatment results include:

- BOD reduction up to 98% in 24 hours
- Energy consumption of 0.3kWh/m³

The technology is successfully treating sewage onsite at number of sites including:

Reduced energy at existing STP PHILIPPINES <i>Reduction in energy demand by 80.25%. Up to 89% BOD reduction</i>	89%
Decentralised sewage + resort commercial kitchen FIJI <i>Up to 96% BOD reduction in 24 hours</i>	96%
Retrofit to existing STP MEXICO <i>Up to 95% BOD reduction in 24 hours</i>	95%
Retrofit to existing STP AUSTRALIA <i>Up to 98% BOD reduction in 12 hours</i>	98%

Note: Typical batch times range between ½ to 1 day.

For further information please contact:

Apex Environmental Limited
P: 03 929 2675
E: sales@apexenvironmental.co.nz
www.apexenvironmental.co.nz



Case studies and technical reports are available.