

SIMPLE & EFFECTIVE TREATMENT OF BREWERY WASTEWATER



Scalable, affordable solution to reduce fees and meet discharge requirements.



WATER SCIENCE NATURE

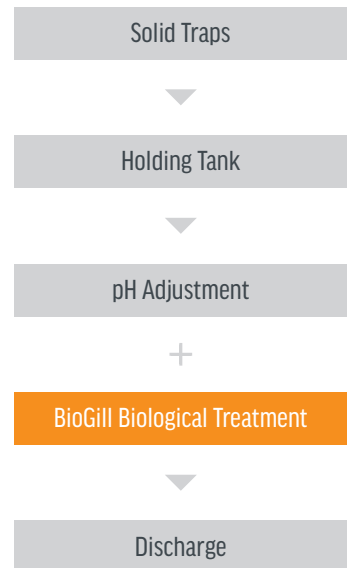
Brewing beer is a water intensive process that generates significant volumes of high sugar wastewater which needs to be appropriately treated before entering sewer systems and the environment. Many breweries as a result, incur significant fees from local authorities and councils, install incorrect technologies or contend with other onsite challenges related to odors and wastewater storage.

BioGill is a new, **clean-tech biological solution** developed in the research laboratories of ANSTO (Australian Nuclear Science and Technology Organisation.) The technology:

- creates the perfect environment for microorganisms to perform at their best; and
- is highly effective in reducing the high levels of nutrients found in brewery wastewater.

The treatment units are modular, so as production and wastewater volumes increase, a brewery can simply add more units. **Compact and small in footprint**, BioGill units are an ideal solution in space constrained locations or as a **retrofit option to boost the capacity** of an existing, under-performing treatment process.

By treating wastewater onsite for discharge, brewers can **save on surcharges**, lower costs and move to more sustainable brewing practices.



BIOGILL BENEFITS



Meet compliance & discharge limits



Simple to install, easy to operate



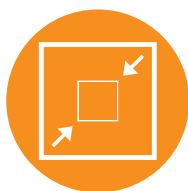
Sustainable brewing



Save on surcharges



Reduce odor



Compact footprint

TREATMENT SOLUTIONS

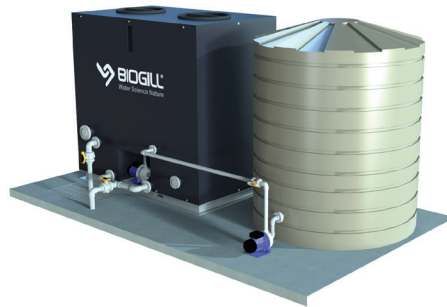
BIOGILL TOWER PLUS

- Smallest BioGill bioreactor, designed to fit tight spaces.
- Versatile and scalable, can also be added to an existing treatment process to boost performance.



BIOGILL SMALL BREWERY PACKAGE

- End-to-end solution ideal for breweries producing under 1000 barrels per year (1.5m³ wastewater per day).
- “Plug & play”, DIY packaged solution with auto pH dosing and filter.



PERFORMANCE GUIDE

Yearly Beer Production (beer barrels)	Wastewater Equivalent ^[1] (daily flow)	BOD(in) ^[2] (mg/L BOD)	BOD(out) ^[3] (mg/L BOD)
1000	1.5m ³ /day 400 gallons/day	2,500	300

[1] Using a wastewater to beer ratio of 4:1.

[2] Literature supported brewery wastewater concentration.

[3] Typical BOD concentration required by municipalities.

HOW BIOGILL WORKS

At the technology’s core is patented nano-ceramic media known as “Gills”, which provide an ideal environment for the attachment and growth of healthy biomass. The uniquely designed Gills are arranged in multiple suspended vertical loops, with wastewater dispersed across the top.

As the wastewater flows down the surface of the Gills, microbes rapidly consume dissolved nutrients, without the use of energy-intensive blowers or aerators.

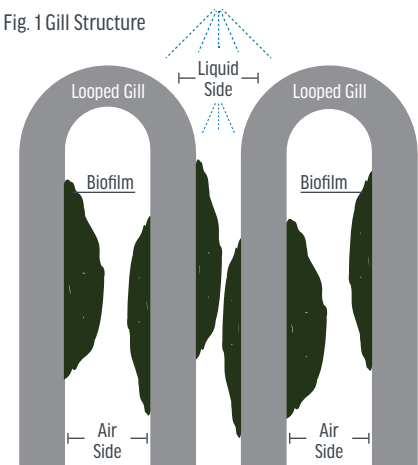
BioGill bioreactors offer efficient removal of soluble organic material in a compact package. The robust and reliable performance of the technology can reduce soluble BOD in brewery wastewater by over 90%.

WHY BIOGILL

- DIY – simple to install, easy to operate with low maintenance.
- Highly effective at treating high-sugar brewery wastewater.
- Onsite treatment to meet local sewer discharge requirements.
- Approved by councils and municipalities around the world.
- Trade waste application support.
- Proven technology designed to grow as you do.
- Improve your environmental footprint.
- Australian invented technology, developed at ANSTO.



Fig. 1 Gill Structure



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Case studies and technical reports are available at www.biogill.com

