

sustainability matters

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VITAL INFORMATION FOR INDUSTRY & GOVERNMENT

case studies

Treating wastewater for food manufacturers

Trial reduced BOD by 92%



For many Australian food manufacturers there is increasing pressure from government agencies to reach higher standards of wastewater treatment for environmental discharge. In fact, throughout the western world, food manufacturers are facing similar challenges.

One of the big problems is that the pipe networks, particularly sewage pipes, are aging. Industrial wastewaters with high sugar-nutrient loads can cause serious damage because fermentation occurs within the wastewater, eroding and degrading the pipes, causing cracks and fractures. In turn, this leads to water ingress which puts a strain on the treatment plants

because of the higher volumes of water, especially in wet weather.

A large fruit-juice manufacturer in regional NSW was facing this issue. The NSW Office of Water was set to significantly increase its discharge fees, unless the company could reduce its biological oxygen demand (BOD) effluent levels from around 2500-4000 to below 600 and preferably below 300 for flexible discharge to sewer.

An Australian-invented technology, called BioGill, which uses microorganisms in a unique bioreactor is used to treat wastewater.

According to BioGill chief executive John West, the technology is groundbreaking and radically different from conventional bioreactors because the gills are not submerged.

Instead the 'gills', composed of membrane sheets arranged vertically in pairs, are suspended in the air, above ground, with wastewater travelling down between them.

"Fungi and bacteria, known as biomass, grow on the membranes in direct contact with the air, eating nutrients much faster than other systems. The high levels of oxygen available means nutrients are removed very rapidly. Old biomass peels



off the membranes and is replaced by new, healthy cells, so the system never fouls and is constantly self renewing," explained West.

The result of this approach is said to be treating biomass of 10 to 15 times that of conventional biological wastewater treatment systems.

A BioGill trial system was recently installed at the juice manufacturing plant.

"The results have been very impressive. Over a 24-hour period, the BOD was reduced from 3500 to 270, that's a whopping 92% reduction," said West.

Planning and engineering for the installation of BioGills to treat up to 180,000 L of wastewater per day is now underway, with the system due to be operational later this year.

BIO-GILL Environmental Pty Ltd

Contact info and more items like this at wf.net.au/K977