

Taking the pressure off managing wastewater costs and regulations

Keeping up with wastewater regulations and minimising costs can be made easier with a good wastewater treatment system. *Food & Beverage Industry News* reports.

In Australia, wastewater is highly regulated and comes at a cost for companies, such as those in the food and beverage industry, who produce it. This is a necessary step the government takes to minimise its environmental impact.

Food and beverage manufacturers – be they dairies, breweries, bakeries, abattoirs, wineries or smallgoods makers – know that wastewater is an unavoidable part of running a business. But, wastewater treatment and/or disposal can be expensive and difficult to manage.

Aerofloat, an Australian wastewater treatment company, offers some innovative, cost-effective systems to help reduce these unavoidable costs.

Wastewater contains contaminants that, if not properly handled, will have negative environmental impacts. These contaminants can be suspended solids such as fats, oils and greases, or soluble contaminants such as dissolved proteins, dissolved sugars, and dissolved alcohol.

Aerofloat can help with the nitty and gritty

Aerofloat managing director Ray Anderson encourages companies to research systems rather than taking the first, and cheapest, one that comes along.

“There’s a lot more to a wastewater treatment plant than just the hardware, the tanks and equipment. How it’s designed, put together, and the expertise of people within the business, are critical for a successful outcome.”

Aerofloat offers two main wastewater treatment systems – Dissolved Air Flotation (DAF) and Moving Bed Biofilm Reactor (MBBR).

The unique designs of these two systems, combined with the company’s inhouse knowledge of chemical flocculation and biological treatment processes, ensures the systems work effectively to meet contaminant discharge standards and save businesses money, said Anderson.

A glimpse at the Aerofloat DAF

Large scale food manufacturers use large volumes of water. By law, they have to sanitise all of their equipment, tanks and floors. To do this, they use a lot of emulsifiers, caustic cleaners, chlorine bleaches and other chemicals.

“In the process of all that cleaning, they tend to emulsify all of the fats, oils, and grease and a lot of the suspended solids. Because of that if you put it through a grease trap nothing will happen. It just goes straight through,” said Anderson.

For this reason, when Aerofloat installs a DAF system, the company makes sure the wastewater is effectively chemically treated first. “We put in up-front storage tanks, which are mixed and which blend the water and hydraulically balance the water from hour to hour,” he said.

“In these holding tanks, where we balance and blend the water, we adjust the pH to an optimal level and then add coagulant chemicals to break these emulsions,” said Anderson.

This makes the separation process of fats, oils, greases and suspended solids a lot more complete, he said.

“Some people think they can just put in DAFs and remove the contaminants. This is normally not the case. You’ve got to understand the chemistry and look at each individual case on its merits and what the nature of the waste is,” he said.

The Aerofloat DAF features a unique design that has no mechanical scrapers and keeps odours away. “We have a sealed tank and we rely on the hydraulics of the water coming in to remove the contaminants off the top of the tank. Our systems are totally enclosed and sealed which is good if you happen to get any odour in the system. It’s easy to vent into the atmosphere with pipes above the roof line,” said Anderson.

The Aerofloat DAF comes in a range of sizes to suit different operations and wastewater flowrates. The smallest in the range, the Aerofloat 100, can treat up to six cubic metres per hour. The Aerofloat 800 can handle larger scale wastewater treatment needs of up to 50 cubic metres per hour.

A look at the moving bed biofilm reactor

Moving bed biofilm reactors (MBBR) are biological systems used to remove soluble contaminants from wastewater. While this technology has been around for some time, the Aerofloat MBBR is different to other systems.

To provide oxygen for the microorganisms Aerofloat developed a unique aeration manifold that can easily be removed and maintained without stopping the system or emptying the tanks. They were also built in low cost polyethylene tanks, Anderson said.

MBBR is a process whereby wastewater is aerated in the presence of micro-organisms, which grow



Aerofloat systems are totally enclosed and sealed.



Aerofloat systems are compact and can be put in small areas.

on the surface of little plastic media particles. The large surface area of these particles – roughly 15mm in diameter X 12mm high – makes this possible. Through this process, the soluble contaminants break down.

“We have aeration devices that enable aeration lancers to be injected

into the tank from the bottom, externally and by using a system of valves and O rings, we can insert or remove those while the system is still operating without shutting it down for maintenance or cleaning purposes. That’s quite a benefit,” said Anderson.

Both Aerofloat systems are suited to the food and beverage manufacturing sector, he said. They are compact and can be put in small areas. If something goes wrong with the process, or if they experience an overload, they can be vented to the atmosphere to minimise odour emissions.

“In addition, we tend to be cost effective. Our products are very competitive in the market place and can be installed for lower prices than most of our competitors,” said Anderson.

Maintenance costs

Of course, when considering installing wastewater systems, businesses need to consider ongoing costs and maintenance. Due to the simplicity of the design, Aerofloat wastewater systems prove to be

sound investments for these ongoing requirements, said Anderson.

“Ongoing costs include the cost of chemicals such as the supply of coagulants and polymers,” he said. “As well as the costs of the electricity for running mixers, feed pumps, circulation pumps and air blowers. We can provide expert advice by remotely logging into the systems and providing ongoing service and maintenance contracts to ensure operators get the benefit of our knowledge and experience.”

Helping companies beyond installing a wastewater system is a key feature provided by Aerofloat.

The company launched a chemical supply and plant servicing business in mid-2018 in response to market demands for a simple and cost-effective way to maintain systems.

The services are available to all industries which have a wastewater treatment plant that requires chemicals or ongoing maintenance.

Aerofloat’s engineers hand-pick the best chemicals for use in wastewater systems to ensure optimal performance, while

minimising long-term costs.

Having the correct chemistry in wastewater treatment systems is imperative to the quality of effluent achieved. This step affects the performance of the overall wastewater system. Wastewater treatment plants that are regularly serviced have minimal downtime and maximum efficiency.

Aerofloat’s servicing business offers weekly, monthly and ad hoc wastewater system servicing contracts, for businesses unable to provide regular maintenance themselves. The service technicians can diagnose and prevent potential problems, replace worn parts at a competitive rate, carry out system cleaning and as an option, install remote login capabilities to identify problems and provide advice.

With Aerofloat caring for businesses’ wastewater systems from start to finish, this allows companies to focus on their core business. Effective management of the wastewater treatment plant reduces environmental impact, optimises operational costs and prolongs the longevity of the plant.



BAC Modular Workplace & Drawer Storage Systems

Made and designed in Australia to Perfection

Order now the latest BAC Catalogue online!



www.bacsystems.com.au

193-195 Power Street GLENDENNING NSW 2761 Tel: (02) 9832 2777 Fax: (02) 9832 3899