

# Solving pH correction issues in food and beverage wastewater

*Food & Beverage Industry News* talks to Aerofloat's head of engineering, Michael Anderson, about how wastewater pH correction is a simple process that can impact on food and beverage manufacturing.

Getting your pH right can have enormous benefits to any business discharging wastewater and yet it is too often overlooked. So, what is pH control?

The alkalinity or acidity of a solution (such as wastewater) is measured by its pH. Neutral pH is measured at 7.0 (such as water). Any number above this is alkaline, while below 7.0 is acidic. Controlling the pH of wastewater has ramifications for whether it can be safely discharged into sewage systems. Generally speaking, the Australian government's industrial effluent guidelines allow a pH from 6.0 to 10.0, but this varies between different water regulators.

Local water authorities run regular testing on wastewater across Australia, and there can be heavy fines and prosecution for those companies that don't meet the guidelines.

"The pH of all wastewater is critical to how it is allowed to be discharged, regardless of whether it is being treated with other processes or not. Local authorities set strict guidelines around what the acceptable pH levels of any wastewater can be," said Michael Anderson, head of engineering for wastewater specialist Aerofloat. "And aside from the negative environmental impact of an incorrect pH, the financial impact can be sizeable."

Wastewater that is discharged outside of the allowed pH limits can cause degradation to the sewer pipe network over time. While there are plenty of off-the-shelf pH correction products available, there's a big difference between treating pH at an industrial level versus a home swimming pool. However, a custom pH correction system doesn't need to be overly complex or costly. If experienced wastewater engineers are involved, their solid knowledge of wastewater and chemistry can make the process quite seamless.

"The first challenge is identifying the variables at play – the temperature

A pH level below 7.0 is acidic, while any reading above 7.0 is alkaline.



of the product, where the equipment is placed, the initial pH levels and what the pollutants and impurities are," said Anderson.

Aerofloat recently worked with Fyna – the company known for creating timeless confectionary products like Wizz Fizz – to set up an automated pH correction system at its Victorian plant.

"Understanding the wastewater impurities, the placement of wastewater systems and production controls was integral to setting up an automated pH correction system at Fyna," said Anderson.

"We needed to create a product that would allow Fyna to operate year-round, regardless of outside temperatures and production variations, with the guarantee that the wastewater

pH at discharge would be well within the local council guidelines."

At Fyna, the previous trade waste system was paired with an old and antiquated pH testing system that regularly needed probe replacement and checking. It was also hard for staff to ascertain the actual pH of wastewater at discharge, which would have serious implications for the business should the levels be outside of the company's trade waste agreement.

Chief executive officer, Gillian Powell, chose Aerofloat after meeting the company's management team at a trade waste show.

"Aerofloat's cost-effective treatment options appealed to our business and size of operation," said Powell. "The team was excellent in assisting Fyna with a number of options that

would ensure compliance to our trade waste agreement. Understanding the regulations isn't easy if you don't specialise in the area so I was grateful to Aerofloat's managing director, Ray Anderson, for his patience with my questions over the journey from quote to commencement of the installation."

"We now have a fully operational system, our staff are trained and involved in the trade waste operations and well-informed of the regulations and compliance requirements we need to meet."

Anderson emphasises the risks companies take by not having a tailor-made system that takes in all the variables that can affect operation.

"Buying an off-the-shelf pH controller just doesn't cut it in most industrial situations," said Michael



The size of a wastewater tank determines what pH level is needed.



Anderson. “It’s critical to take into account all the variables, whether it’s the way the wastewater tanks are mixed, where the tank is, how big it is, how often it is in use and so on.”

Aerofloat offers a range of solutions to its clients for pH control. The company uses probes inserted into the wastewater, that identify the exact pH of the effluent at that point. This allows operational staff to subsequently adjust the pH through chemical dosage.

“Aerofloat can pump the effluent through tanks in a recirculating

pattern, which allows us to dose the wastewater with chemicals as required until the desired pH is achieved,” said Anderson.

The Aerofloat pH correction equipment features an automated correction system that allows operational staff to monitor the temperature and pH levels prior to discharge.

“Operational staff can keep track of the pH levels of the wastewater and, if it isn’t correct, they can adjust the settings to ensure

**“Anderson says understanding the variables and getting the chemistry right is vital to ensuring the correct pH at discharge.”**

compliance,” said Anderson.

A major part of pH control is of course getting the chemical balance right. Anderson stresses the importance of maintaining the correct chemical balance by engaging wastewater experts.

“Each chemical has its own reaction

time and is impacted by a number of factors. These can include temperature, processing time, volume of effluent and even placement of tanks. We need to strike that perfect chemical balance in the wastewater tanks to get the required pH level.”

Following the installation of the wastewater system at Fyna, the company contracted Aerofloat to provide ongoing chemical supply.

“We have recently begun ordering our chemicals for the system from Aerofloat and their service has been excellent – our previous supplier still hasn’t answered an email for a quote for the acid we needed,” said Powell.

Anderson summarises the importance of not underestimating good pH control.

“Good pH control is relevant to almost all industrial applications. Aerofloat has seen the benefits of this first-hand, whether it be in a brewery, a confectionary factory or a dairy,” he said. “The benefits of pH controlling systems are enormous and have a major impact on the resulting effluent.”

**Aerofloat designed an automated pH correction system for Fyna, who manufacture Wizz Fizz confectionary.**

