

Green energy from waste unlocks profit potential for the dairy industry

Despite surging energy prices and the spread of carbon pricing to counter global warming, many sections of the dairy industry are still pouring potential profit down the drain by overlooking the green energy potential of wastewater.

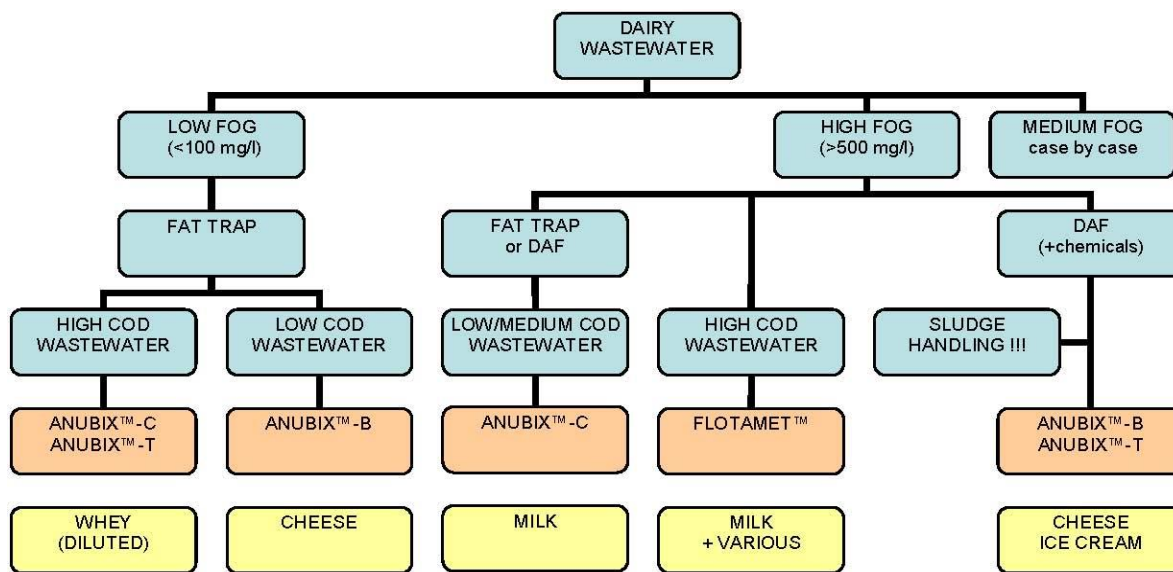
The industry has tended to treat its waste water as a cost and place into which production process mistakes are flushed – “If there were spills or if a production product was out of specification, it would be flushed down the drain into the waste water – that’s where the mistakes went,” says waste water and green energy specialist Mike Bambridge, Managing Director of CST Wastewater Solutions, GWE’s Australian partner.

However, such outdated practices overlook the huge, often hidden, potential in using wastewater as a source of renewable energy, rather than seeing it as a cost, says Mr Bambridge, whose company has more than 20 years experience building wastewater recycling and biogas production plants using GWE technology throughout Australasia.



Many of the latest installations use advanced technologies to enhance water discharge purities while converting waste into methane to be burned to power boiler and hot water systems, or to power generators and permanently replace fossil fuels. On average, the removal efficiency of GWE's anaerobic wastewater treatment installations reaches 90-95 per cent, easily bringing the organic load down to regulatory discharge standards for most types of wastewater.

The chemical oxygen demand (COD) of dairy wastewater can be anything between 2000 and 10000 mg/l, and for cheese factories it can be much higher (50000 mg/l, in case of no whey recovery). This high loading of organic pollutants makes dairy industry wastewater particularly well suited for anaerobic treatment, followed by an aerobic polishing treatment if required.



GWE has several treatment systems suitable for use on dairy wastewater. Of high importance in selecting the right solution for a factory's needs is the amount and type of Fat, Oil & Grease (FOG) present in the wastewater. In the case of ice cream and butter processing, which tend to involve markedly higher FOG wastewater levels, FOG is easily removed through DAF (Dissolved Air Flotation). A high rate ANUBIX™-B system, sensitive to excess FOG in the wastewater, is possible and often preferable in these situations. In other cases, with a lot of milk processing (incl. milk powder), the FOG in the wastewater is basically diluted milk, and the FOG is emulsified, such that DAF can not always remove it properly, even after chemical treatment. In such cases, GWE offers two anaerobic systems which can treat dairy wastewater with or without limited FOG removal: the ANUBIX™-C system and the FLOTAMET™ system.

Additionally, closed anaerobic reactors generate large quantities of methane (CH₄) from the organic materials in the wastewater, which can be used to diminish or completely eliminate the need for fossil fuelled power generation in the production process.

For specific industry applications with high organic loads, a factory's needs may be completely covered, with enough biogas surplus to produce electricity for sale back to the national grid, often generating carbon credits and significantly reducing carbon footprint.



It is crucial to select a suitable technology provider for wastewater treatment with biogas utilization. GWE/CST Wastewater Solutions are a reliable, experience team with a solid track record in this field, complemented by more than 20 years of hands-on local wastewater experience.

The GWE/CST Wastewater Technology partnership encourages businesses with organic content in their wastewater and waste streams to investigate the anaerobic potential for their specific case.