



WATER RECYCLING SOLUTION AUSTRALIAN RECYCLED PLASTICS, NARRABRI NSW

Fully automated wastewater treatment system from Aerofloat provides odour reduction in production facility and odour free finished products.

BACKGROUND

In late 2015, Aerofloat was contacted by Australian Recycled Plastics (ARP) to consult on its wastewater challenge at its plastics recycling plant in Narrabri, North West NSW. Narrabri has an average mean rainfall of 650mm per year and water supply is limited in the area. As such, water conservation is imperative for ARP.

When building the greenfield plastics recycling plant, ARP installed a half million litre water capture facility from the roof of the 4000m² building, as well as a water recycling system to treat the process wastewater. This system consisted of fine screens followed by ultrafiltration.

Upon commencement of production, ARP found that a major odour problem arose at the plant as the water recycling design did not address any soluble contaminants in the water.

THE NEED

ARP required a solution to reuse its wastewater and reduce odour in the production facility as well as the finished products.

THE SOLUTION

Aerofloat provided a wastewater treatment system utilising its patented AeroDAF and AeroMBBR technologies, to allow ARP to re-use its wash water in its plastics processing without any offensive odours being present.

THE BENEFIT

The solution meant that ARP can operate at full capacity, with odour elimination and without having to dispose of wastewater and regularly refill with fresh water.





These contaminants were being generated primarily from the degrading soluble protein and lactose from residual dairy products in the plastic. The resulting odorous water was causing occupational health and safety issues for the workers and was also affecting the quality of the finished product – a pelletised plastic form of Polyethylene (PE) and Polyethylene Terephthalate (PET). The PE and PET pellets are used for products demanding high quality specifications, namely the manufacture of food meat trays and as a component in composite plastic decking material.

To resolve the odour and contamination problems, ARP was forced to regularly dispose of wastewater and refill with fresh water, as well as limit the production hours, thereby causing major interruptions to operations. The operational down time and cost of replacing the water was not a viable long-term option for the company. ARP needed a swift solution to continue operations which is where Aerofloat stepped in.

Plastic waste is a major global issue with plastics recycling an emerging industry to combat this environmental challenge. It is estimated that only a fraction of the world's plastics is captured for reuse, despite there being many uses for recycled plastic material.



THE AEROFLOAT SOLUTION

In order to begin the recycling process, plastic must enter a large tank of water to essentially clean and separate the different types of plastic. In the tank, the PE floats and the PET sinks. This process requires large volumes of recirculating water. As this water becomes contaminated, often with residual dairy components from ice-cream, yoghurt and milk containers, it must be regularly replaced. This can be a costly exercise, making it desirable to treat and recycle the process wastewater.

Aerofloat provided a wastewater treatment system which included its patented AeroMBBR and AeroDAF products. The system needed to have the following features:

- easy to install
- low maintenance
- compact
- cost effective
- sealed and vented
- easily cleaned with minimal downtime

RESULTS

Within one week of Aerofloat installing the system the odour in the production facility and products was eliminated. Shortly thereafter, ARP was operating at full capacity. The Aerofloat system has been fully operational since March 2016, making ARP a very satisfied client.