

CASE STUDY

Bulk Container Recycling Industrial Wastewater discharge



**Client: Reusable
Packaging
Manufacturer,
Australia**

**Treatment
of industrial
wastewater to
remove glyphosate**

This company recycles plastic intermediate bulk containers (IBCs) and plastic drums that are used for storing farming chemicals. In the cleaning process of returned IBCs, the generated wastewater includes a high concentration of glyphosate.

Glyphosate is the world's most widely used herbicide and crop desiccant. In recent years, the cancer-research arm of the WHO announced that it is probable that glyphosate is carcinogenic to humans.

The Challenge

Glyphosate needs to be treated for safe discharge to meet regulatory requirements. The company currently uses Vacuum Distillation (Evaporation) - the most popular method for removing high glyphosate concentrations in effluent streams - and incurs high capital and operational costs.

Bulk Container Recycling Industrial Wastewater discharge



Our Solution

Infinite Water reviewed the customer's current system and designed a process to treat the industrial effluent for discharge compliance. Our research team conducted in-house optimisation developing a fit-for-purpose solution specific to the customer needs. The solution is a combination of mechanical/ chemical separation and Infinite Water's Hydroxon™ process (incorporating Catalytic Advanced Oxidation).

We worked closely with the customer to optimise the existing pre-treatment clarification stage.

Outcomes

The Hydroxon™ process successfully reduced glyphosate levels from 500 mg/L to below 0.38 mg/L (>99% reduction) and treated other pollutants to meet discharge regulations.

Consistent results were obtained over 12 months of continuous operation.

Significant capital cost savings (~70%) and operational cost savings (>95%) were achieved compared to the evaporator system. This included very low energy consumption ~0.1 kWhr/m³.

Contaminant	Unit	After Pre-treatment	Treated	Limit
Suspended Solids	mg/L	45	<5	1500
COD	mg/L	2200	900	6000
Total Phosphorus	mg/L	8.40	0.20	500
Zinc	mg/L	2.07	0.01	3
Glyphosate	mg/L	500	0.38	10
Phenols	mg/L	3.08	0.02	100
2,4 Dichlorophenol	mg/L	0.22	0.06	1
Trifluralin	mg/L	0.88	<0.05	1

