



Oxyle removes over 98% of micropollutant pesticides from an international pesticide manufacturer's wastewater stream.

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Industrial Wastewater Whitepaper

[www.oxyle.com](http://www.oxyle.com)



20

highly persistent,  
mobile and toxic  
pesticides identified

98%

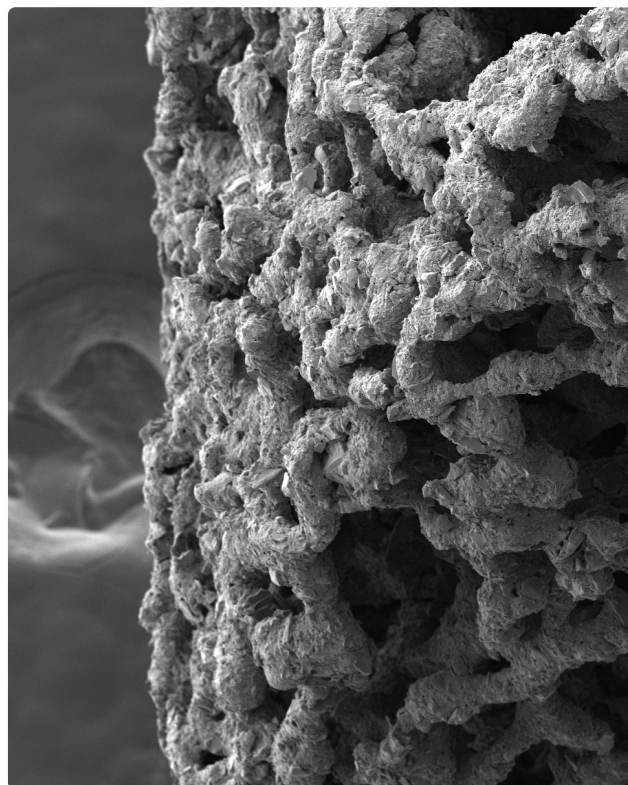
removal rate for  
micropollutant pesticides

4

high-concentration  
pesticides (>200mg/L)  
eradicated

## The Challenge

Over a thousand pesticides are utilized globally to safeguard crops against pests such as insects, weeds, and fungi. These pesticides play a crucial role in sustaining food production for a growing global population. Water-soluble pesticides, while convenient, pose risks to humans and aquatic life. To counteract this, stringent discharge restrictions are now enforced worldwide to regulate their release. Traditional methods fall short of eliminating a substantial portion of these pesticides. Innovative solutions are urgently required to effectively address these microcontaminants while remaining practical, economical, and sustainable. We partnered with an international agrochemical company to address their concentrated wastewater from pesticide production and ensure compliance with discharge limits. Our primary goal was to achieve an 80%+ removal rate for 20 persistent pesticides.



## The Solution

Oxyle seamlessly installed the reactor on-site, fully integrated with their patented catalyst technology. This setup efficiently directed processed effluent to the reactor, without the need for additional pre-treatment. The reactor—operated remotely and at room temperature—utilized bubbling as its highly efficient and sustainable energy source. When activated, the catalyst generated an abundance of reactive radicals, effectively breaking down organic contaminants into safe-to-discharge water.

Pesticide Compound	Removal (%)	Pesticide Type
Ametryn	98.8	herbicide
Atrazine	99.7	herbicide
Azoxystrobin	98.7	fungicide
Chlorantraniliprol	>90	insecticide
Cyproconazole	95.3	fungicide
Difenoconazole	99.9	fungicide
Fluazifop	>99	herbicide
Mesotrione	>97	herbicide
Paclobutrazol	>98	fungicide
Prometryn	>99	herbicide
Propazine	>99.9	herbicide
Simazine	99.6	herbicide
Thiabendazole	99.9	fungicide
Thiamethoxam	>95	insecticide
Cyromazine	94.8	insecticide
Difenoconazole	99.9	fungicide
Fluazifop	99.5	herbicide
Hexazinone	98.3	herbicide
Metalaxyl	99.2	fungicide
Metolachlor morpholinone	99.4	herbicide

# The results

## High removal rate

Several initial compound concentrations were exceptionally high, such as Ametryn (230 mg/L), Atrazine (480 mg/L), Azoxystrobin (217 mg/L), and Metolachlor (315 mg/L). Oxyle's advanced catalytic technology efficiently **eliminated 98% of 20 highly persistent pesticides**. Additionally, it effectively addressed other micropollutants in the wastewater, including industrial chemicals and colored pigments, ensuring comprehensive water treatment.

## Energy efficient

Thanks to Oxyle's cost-effective and scalable energy sources, the agrochemical company has been able to mitigate the high energy costs associated with conventional treatment solutions - **achieving improved results for 2-6 times cheaper**.

## Environmentally friendly

Oxyle's solution ensures **zero toxic secondary waste**, allowing them to bypass CO2-heavy incineration and significantly reduce water consumption.

### The need

## Why eliminate these micropollutants?

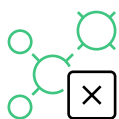
### Harmful effects:

- Highly toxic to humans, animals, aquatic organisms, and the environment
- Global contamination of waterways

### Regulatory pressure:

- Mandated abatement of micropollutants by 80% in CH
- Potential liabilities and disruptions to business continuity

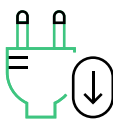
### Why Oxyle?



**Complete destruction of any PFAS**



**Zero toxic secondary waste**



**Cost-effective energy sources**



**Real-time monitoring and optimization**



**Validated technology with uptime exceeding 6 months**