



Treatment of Pharmaceutical Wastewater

Equipment Capacity/Flow Rate

2m³/week

Compounds of Concern

API

Influent Concentration

20 mg/L API

Treatment Targets

0.01 mg/L API

Unit Energy Consumption

5 kWh/m³

Background

We were approached by a pharmaceutical company generating small batches of wastewater with persistent APIs. The presence of hazardous APIs meant that they were unable to discharge their wastewater, instead having to tanker it offsite, at a cost of up to 300 EUR/m³.

Their priorities included:

- Simple to operate (hands off)
- Removal of >99% API
- Interested in removing API for CSR purposes (responsible manufacturing)
- Save on costs for tankering away

“Their team are both highly experienced, personable and able to answer difficult questions on both the chemistry and the operation / running cost elements of the equipment. Arvia ran trials for us on our waste stream, and tested for our API at various stages throughout the process, using a method supplied to them, which allowed for faster turnaround of test results, and allowed them to tune their system to give the best solution to our issue.

I have found Arvia to be pro-active in following up on our project and interested in finding solutions to provide an automated solution as per our specification and to reduce overall cost to make the project more financially viable. I'm sure that when this project reaches the next stage that we will be coming back to Arvia to support our further efforts.” – EHS Coordinator



“ Arvia have been interested, attentive and very knowledgeable in our project conceptual design for treatment of API residues in waste. Their technology is innovative and has been proven to solve our waste issue.



The Solution

We deployed the Nyex Rosalox™ treatment system in order to tackle the containing the API containing wastewater. This is a compact and fully automated solution.

Arvia's solution provides a <2 year ROI.

Technology alternative is a multiple effect evaporator. Capital cost of Arvia's solution is ¼ of MEE cost. MEE is a higher OPEX solution too.

The Nyex-a treatment process combines adsorption with electrochemical oxidation in a single, scalable unit. As the contaminated water flows into the reactor tank, pharmaceutical contaminants are concentrated onto the surface of our proprietary Nyex™ adsorbent media, which is non-porous with high electrical conductivity.

A low electrical current is simultaneously passed through the media bed to fully mineralise the adsorbed contaminants to H₂O, H₂ and CO₂, without the production of sludge. Unlike activated carbon, Nyex™ media is effectively regenerated in-situ and the process can continue without interruption or incineration to renew the media.

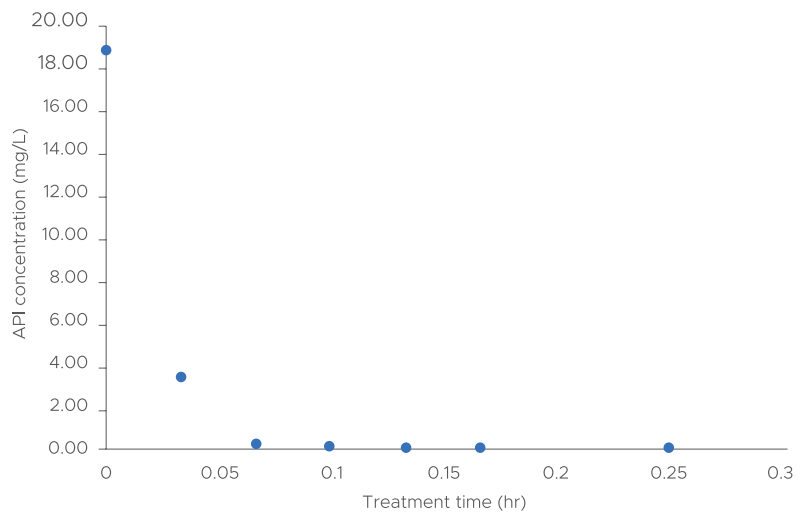
The treated water then flows from the reactor tank ready to be safely discharged.

The Result

Results from the trials show a comprehensive removal of APIs of >99% and often to below the limit of detection (LOD).

To download this case study and others, visit our download area.

<https://arviatechnology.com/downloadable-content/>



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Get in touch to discuss your company's treatment challenges and arrange a treatability trial on your wastewater today.