



COD Removal for Water Reuse in Tobacco Manufacturing

Equipment Capacity/Flow Rate
Low Flow

Compounds of Concern
COD

Influent Concentration
50 mg/L

Treatment Targets
95%

Unit Energy Consumption
2.16 kWh/m³

Background

Water Reuse in Tobacco Manufacturing

Major tobacco processing facilities have approached Arvia for treatment support in different stages of their value chains. A big driver is to increase water reuse.

This case study investigates how our client was able to reduce the overall COD (Chemical Oxygen Demand) organic loading to enable wastewater reuse.



The Objectives

COD Removal from Tobacco Wastewater

Tobacco processing facilities have been looking for more cost-effective and sustainable methods which are in-line with their water management plans.

Our client was looking for a complete closed-loop solution in which Chemical Oxygen Demand (COD) would be reduced from 50mg/L to as close to zero as possible. This wastewater could then be reused for other purposes around the facility, including cleaning.

The Solution

Arvia's Nyex-a system was deployed which combines adsorption with electrochemical oxidation in a single, scalable unit.

Organic contaminants are preferentially adsorbed, localising them onto the surface of the carbon-based Nyex™ media. A low electrical current is then passed through the media bed which fully mineralises the adsorbed contaminants to H₂O, H₂ and CO₂. The electrical current simultaneously regenerates the surface of the media in-situ, allowing for further adsorption and treatment without interruption or incineration.

Results are achieved without chemical dosing or the generation of sludge reducing costs in terms of labour, transport of chemicals and specialist waste disposal.



The Results

The project involved the treatment of wastewater using a Nyex 1-20a system at the client's site of wastewater taken at the final stage of their existing treatment train, for advanced 'polishing' treatment.

The inlet water was analysed at a COD level of around 50 mg/L and final samples were just above the limit of detection, as requested.

The energy consumption was very favourable at 2.16 kWh/m³.

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