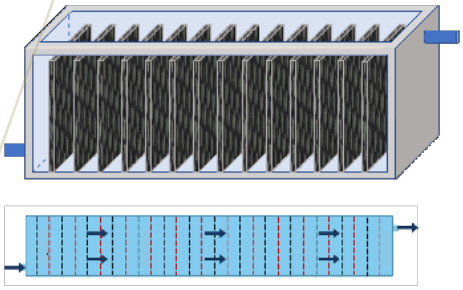
ANODOX-BIO

Treatment of industrial wastewaters concentrated in biorecalcitrant organic compounds by a combination of anodic oxidation and biological processes.

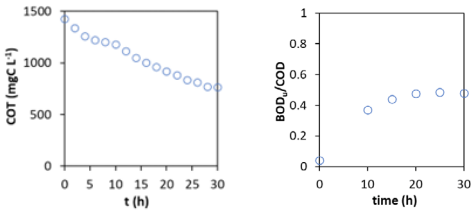
ERGANEO
L'AVENIR EST FAIT D'AUDACE

PRESENTATION

Biological treatments play a crucial role in removing organic and nitrogen compounds from wastewater with high cost-effectiveness. However, these technologies face limitations when dealing with industrial wasterwater containing biorecalcitrant organic compounds. This innovative anodic oxidation reactor tackles the issue by oxidizing the biorecalcitrant compounds, non selectively and transforming them into more biodegradable forms, to achieve a synergistic effect with a post-biological treatment. This combination of treatments aims at reaching high removal yields, for a wide range of industrial wastewaters with optimized energy consumption.



Schematic view of the reactor



Example – Application to the treatment of a landfill leachate: partial mineralization of the organic load corresponds to biodegradability enhancement of the effluent

Industrial wastewater treatment – Concentrated effluents
Recalcitrant organic compounds – Electrochemistry
Combined process – Biodegradation - Anodic oxidation
Degradation and mineralization of organic pollutants

APPLICATIONS

Industrial wastewaters (e.g., pharmaceutical industry, textile industry, landfill leachates, papermill industry)

COMPETITIVE ADVANTAGES

- On-site elimination of the biorecalcitrant organic load
- Partial mineralization of high concentrations of recalcitrant organic compounds
- Versatile technology for application to a wide range of industrial concentrated effluents
- Implemention in combination with existing reactors of biological treatment
- Compact and easy to process

INTELLECTUAL PROPERTY

Patent

DEVELOPMENT PHASE

Implementation of a continuous lab-scale reactor with boron-doped diamond meshes allows both partial removal of the organic load and conversion of parent compounds into more biodegradable by-products during the treatment of a landfill leachate as model effluent.
TRL : 4

CONTACT

+33 (0)1 44 23 21 50
industriels@erganeo.com
Ref. project : 722

LABORATORIES

Université Gustave Eiffel - Geomaterials and Environment Laboratory