WATER TREATMENT

RADIAL DISCHARGE PLASMA FOR THE TREATMENT OF CONTAMINATED LIQUIDS

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What we are looking for

We are looking for a suitable partner to enter into license deal/co-development partnership

What it is needed for?

Removal of harmful recalcitrant organic substances (anthropogenic or otherwise) from water and aqueous matrices like leachate is indispensable for ensuring public health and safety, and for environmental protection.

The choice of technology for contaminants removal is case specific and often relies on Advanced Oxidation Processes (AOPs), like Fenton reaction, sonication and photocatalysis that use hydroxyl radical (·OH) as the main oxidant species. The use of chemicals and high energy demand, however, are their associated drawbacks. Additionally, removal of highly stable organic pollutants, e.g., poly- and perfluorinated substances (PFAS), is still a great challenge.

The present technology, exploiting the action of electrons and ions besides that of OH radicals, relates to a new and efficient plasma reactor system for the removal of any recalcitrant organic compound, in particular surfactants.

Advantages

- Difficult to treat recalcitrant organic substances like PFAS can be removed with this invention;
- Green technology: no use of chemicals is required;
- Operates at room temperature and atmospheric pressure;
- Higher plasma surface to volume ratio than similar systems;
- More energy-efficient treatment compared to similar systems;
- Flexible system, easy to install and maintain;
- Very short switch on/off times.

Applications

Treatment of waters contaminated by

- PFAS;
- surfactants;
- recalcitrant organic compounds.

TRL scale

1 2 3 4 5 6 7 8 9

Environment and Construction