

Method for the Degradation of Antibiotics from Aqueous Solutions Using Cold Atmospheric Plasma Generated in a Flow Plasma Brush and a Plasma Brush for Implementing this Method

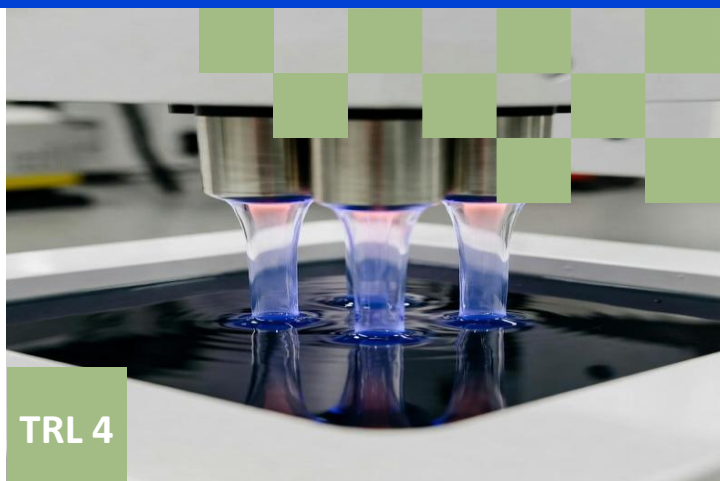
About the solution

The invention relates to a method for degrading antibiotics from aqueous solutions using cold atmospheric plasma generated in flow plasma brushes of the pm-rf-APGD or DBD type, as well as a dedicated plasma brush designed for this process.

The technology enables efficient degradation of single antibiotics and their mixtures, typical of municipal and industrial wastewater.

The flow-through design and multi-cone plasma system (4–5 plasma cones) enhance plasma–liquid interaction and increase degradation efficiency.

Cold atmospheric plasma allows the breakdown of a wide range of antibiotics (including fluoroquinolones, tetracyclines, trimethoprim, chloramphenicols, and β -lactams) without the need for aggressive chemical reagents or high temperatures. The technology is environmentally friendly and offers an alternative to conventional wastewater treatment methods, helping to reduce antimicrobial resistance.



TRL 4

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IP Protection

The invention is the subject of polish patent application: **P.440185** and international application: **PCT/PL2022/050027**

Applications

- Municipal and industrial wastewater treatment,
- Pharmaceutical and medical industries,
- Environmental engineering,
- Antibacterial and antimicrobial technologies

Cooperation opportunities

- Research and industrial testing partnerships,
- Technology licensing
- Technology sale