



PRIME Reference Number: PRIME2021/TB2

Bioreactor for industrial effluents recycling and hydrogen gas production

Domain: Others / Cleantech

IP Status: Indian Patent and PCT filed.

The device is a fully autonomous, unmanned bioreactor array capable of being installed at remote industrial sites for hydrogen gas production with minimum intervention and maximum safety. The IP underlying the process involves a bioelectrochemical reaction which uses designer microbial consortia to breakdown the dilute carbon content of industrial effluents and produce hydrogen gas in an electrochemical process resulting in recycled clean water.

Market Potential:

The global hydrogen market is projected to grow from USD 130 billion in 2020 to USD 201 billion by 2025 (CAGR of 9.2%).

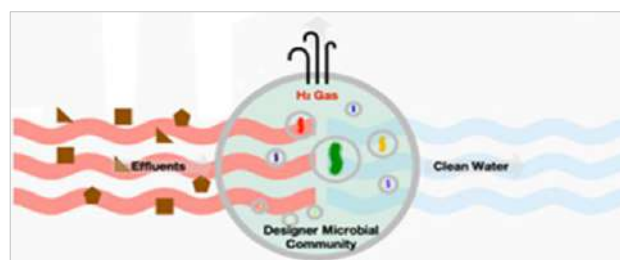
Requirements: Seeking industry partner for pilot study, deployment & licensing

Value Proposition:

- A 2-in-1 autonomous bioreactor produces hydrogen gas and recycle wastewater simultaneously
- Efficient recycling that reduces carbon and water footprint
- Hydrogen produced can be used as fossil fuel alternative for heat, power, or as raw material
- Retrofittable device with minimum downtime
- Runs on localized power generated using an attached generator and does not directly draw power at site

Applications: Any industrial effluent with a controlled carbon and nitrogen content (based on processes upstream) is capable of being processed.

- Steel industry
- Oil and gas industry
- Pharmaceutical industry
- Chemical industry



IP based on intelligent Consortium Development for conversion of dilute carbon content in to hydrogen gas.



Fully autonomous unmanned bioreactor.