

System And Method For Concentrating The Waste And Producing Valuable Gases From Waste Of Treated Water

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ABSTRACT

A system (1000) and method for concentrating the waste and producing valuable gases from waste of treated water is provided. The system (1000) may include at least one equalization tank (100), at least one flocculation and separation chamber (200), at least one collection chamber (300), at least one pretreatment chamber (400), at least one anaerobic chamber (500) and at least one gas connection unit (600). The system (1000) and method may separate the waste from the waste water and concentrate the waste. The system may further process the waste that may produce valuable gases.

KEY APPLICATION AREAS

- 1.Wastewater treatment and sludge management.
- 2.Waste-to-energy and biogas production.
- 3.Decentralized wastewater treatment systems.
- 4.Resource recovery from wastewater.
- 5.Sustainable water recycling and circular economy.
- 6.Municipal and industrial wastewater processing.

POTENTIAL USE

- 1.Concentration of wastewater sludge using natural (non-chemical) flocculants for efficient treatment.
- 2.Production of valuable gases (biogas) from treated wastewater sludge through anaerobic digestion.
- 3.Decentralized wastewater treatment plants for residential communities, campuses, and remote locations.
- 4.Recovery of reusable treated water while simultaneously converting sludge into

energy.

5. Rapid sludge stabilization through alkali pretreatment and controlled anaerobic digestion, reducing solid retention time (SRT).

6. Municipal and industrial waste valorization, transforming wastewater residues into renewable energy and reducing disposal costs.