



1 Batch fermentation system for BMP tests.



2 Continuous biogas test plant.

ASSESSMENT OF BIOGAS PRODUCTION POTENTIAL AND OPTIMIZATION / VALORIZATION STRATEGIES

Background

Renewable gases like biogas/biomethane are key vectors to support the energy transition and decarbonization of the economy. Biogas offers a distinctive opportunity for cities and regions to develop integrated and circular waste management solutions, while biomethane deployment benefits from existing gas infrastructure.

Despite the maturity of existing technologies for biogas production, site-specific situations like plant flexibility requirements (e.g., concerning feedstock quality and availability), integration of biogas plants with other processes, or the economic forecast of a biogas plant project often demand specialized services to support decision-making.

guide decisions on feedstock selection, including:

- agricultural waste;
- animal manure;
- energy crops;
- milk whey;
- sewage sludge.

Continuous anaerobic digestion tests allow the assessment of the long-term behavior and process stability concerning gas quality and yield under different conditions (e.g., feeding intervals, concentration of inhibitors, impact of nutrients, etc.). Derived information can be used for the scale-up or optimization of existing digesters.

Testing of membrane-based processes for biogas cleaning, upgrading or catalytic conversion is also possible at Fraunhofer Portugal AWAM laboratories.

Solution

Anaerobic digestion processes for biogas production and the integration of additional processing steps (e.g., cleaning, upgrading, catalytic conversion) are focus areas of research at Fraunhofer Portugal AWAM.

Characterization of substrates and biochemical methane potential (BMP) tests carried out in small and batch bioreactors are important initial steps for assessing the gas yield and kinetics of organic substrates through anaerobic digestion. They

Services

- Characterization and pre-treatment of substrates for biochemical conversion;
- Determination of biochemical methane potential (BMP) and quality of gas according to VDI 4630;
- Continuous anaerobic digestion tests;
- Feasibility studies for biogas processing (e.g. upgrading, catalytic conversion, etc.);
- Economic forecast of a biogas plant project.

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