

TRAINING MATERIAL

Title:

Technology for N&P recovery as digestate starting from vegetable oil waste with pig manure with "VALUVOIL" two-phase anaerobic digestion process

Training:

What is the technology?

A novel technology of anaerobic digestion in two phases (own design). With this technology, waste from the oil industry and livestock waste can be treated.

Who is the vendor of the technology?

Fundación Cartif.

CARTIF is a horizontal, private and non-profit technology center. Its mission is to offer innovative solutions to companies to improve their processes, systems and products, improving their competitiveness and creating new business opportunities.

CARTIF develops R&D projects, directly funded by companies or public funds raised through competitive calls for national and international level. CARTIF also advises public authorities (municipalities and regional governments) in the planning and development of innovative projects with high economic returns.

Which other technologies are provided by the vendor?

"Algaecan" process (Technology for N&P recovery as microalgae based biofertilisers starting from wastewater with heterotrophic microalgae).

"Mix-Fertilizer" process (Technology for N&P recovery as enriched compost from digestate of pig manure).

"Revawaste" process (Technology for P recovery as struvite starting from digestate coming from methanogenic reactor and manure).

Technology for P recovery as struvite starting from pig manure digestate with fluidized bed crystallization system.

Which are the advantages of the technology and the problems addressed?

The water and soil pollution derived from waste oils could be significantly reduced by the proper treatment of the residues and by-products generated in their refining to produce biodiesel. The VALUVOIL system (Figure 1) offers several advantages, through biofuel production, bio-products of use to the farming sector, and dramatic reductions in hazardous sludge requiring further treatment and safe disposal in landfill sites.

How does the technology work?

A two-phase anaerobic digestion system (Figure 1) transforms a mixture of oil waste and pig manure into biogas, through co-digestion (taking advantage of the synergies of both wastes). As a liquid by-product, a digestate with optimal agronomic quality is obtained. The most optimum conditions displayed a generation of 2234 L/day of biogas with a methane concentration of 65% and moreover produce very less organic sludge than conventional physiochemical treatment systems, being a Eco-friendly process where no hazardous sludge were generated.

How/where to use the technology? Describe the type of inputs requested and expected outputs.

The anaerobic digestion plant is fed with waste oil and pig slurry and a gaseous product (biogas) and a liquid by-product (digestate) are obtained. The technology is suitable for installation in a farm or in a waste treatment center.

Which are the authority permits and in which EU countries?

The technology is installed in the waste treatment center o farm where the waste is generated. Therefore, the authorization should be waste treatment facility permits.

How much does it cost?

CAPEX: 1.0 M€ OPEX: 0.25 M€/y Capacity: 1,700 t oil waste/y and 2,500 t pig manure/y



Figure 1. VALUVOIL two-phase anaerobic digestion plant

For more information: https://nutriman.net/farmer-platform/technology/id_259