

## TRAINING MATERIALS' template

### Title:

Technology for N&P recovery as ammonia sulphate solution and P-concentrated sludge from digestate, manure and wastewater by TerraOrganic FFT&HEF system (ID:466)

### Training:

#### **What is the technology?**

TerraOrganic FFT&HEF is an innovative technology system for nutrient separation and recovery from digestate, manure and wastewater. It extracts water, P and N from digestate, manure and recirculates of biogas plants.

#### **Who is the vendor of the technology?**

Since 2007, Terrawater has specialized in extracting resources from water and wastewater treatment. In the evaporation and separation processes, Terrawater uses the waste heat or other heat sources from existing processes and manages without chemicals. With its strong team of engineers, software developers and process engineers. Terrawater is constantly developing its unique evaporation technology and adapting it to a wide range of tasks. In doing so, this team works very closely with a highly motivated manufacturing department that makes the developers' ideas a reality with high quality. <https://www.terrwater.de/>

#### **Which other product/technologies are provided by the vendor?**

Technology for N recovery as ammonium sulphate from recovered ammonia sulphate solutions by "TerraSaline S (ASL)" water extraction.

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

The Terrawater FFT and HEF technologies separate and recovers effective nutrients from digestate, manure and wastewater. The separation into solid/liquid phases results in a significant reduction in volume and concentration of nutrients. This significantly increases the transportability of the produced recyclates. Very efficient Ammonia and Ammoniac extraction (up to 99%) and a recovery of a defined liquid N-fertilizer (ammonium sulphate solution). This can be used directly or a mixture can be added to the thick sludge to produce an N,P fertilizer worthy of transport.

### How does the technology work?

The TerraOrganic FFT is a solid liquid separation, based on a press screw and a (mechanical) micro filtration. This allows the separation in a solids phase, a thickened sludge and a liquid phase. The thickened sludge contains up to 50 % of the phosphates. The liquid phase, which contains main part of the N fraction, is transported to the TerraOrganic HEF.

The TerraOrganic HEF is a humidification/dehumidification system, combined with an Ammonia stripping. It extracts 10 m<sup>3</sup> of water per day with a very efficient Ammonia and Ammoniac extraction (up to 99%) by producing as a liquid fertilizer ammonia sulphate solution (ASL). The system needs heat to operate.

### How/where to use the technology?

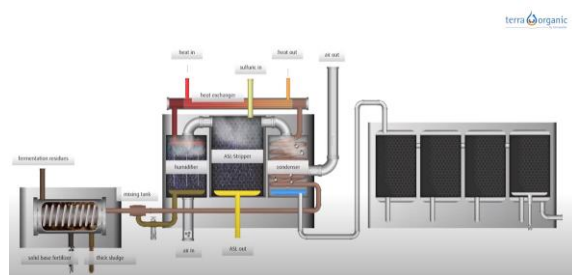
For physical separation and nutrient recovery of manure or digestate from biogas plants. The concentration of the nutrient in the recycles increase of the transport worthiness. For producing more defined fertilizers out of digestate, manure and recirculate of biogas plants.

### Which are the authority permits and in which EU countries?

The construction of the TerraSaline S technology is subjected to regional regulations for regional building permit, industrial pollution control regulation and water directives.

### How much does it cost?

Capex: starting with 450.000€.



For more information: [https://nutriman.net/farmer-platform/technology/id\\_466](https://nutriman.net/farmer-platform/technology/id_466)