

## TRAINING MATERIAL

### Title:

Technology for N recovery as ammonium sulphate from recovered ammonia sulphate solutions by "TerraSaline S (ASL)" water extraction (ID:453)

### Training:

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

The TerraSaline S is an innovative technology for producing ammonium sulphate (AS) fertilizer out of any ammonium sulphate solution (ASL).

#### **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&P recovery as ammonia sulphate solution and P-concentrated sludge from digestate, manure and wastewater by TerraOrganic FFT&HEF system ([https://nutriman.net/farmer-platform/technology/id\\_466](https://nutriman.net/farmer-platform/technology/id_466)).

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

The Terrawater technology converts any ammonia sulfate solution to a defined granulated fertilizer product ammonium sulphate. This means that the nitrogen fractions resulting from the treatment of liquid manure or digestate residues can be used in a much broader and more targeted manner. The fertilizer can be easily stored in big bags or in bulk. The fertilizer is applicable with conventional fertilizer spreading technology. Terrawater's "TerraSaline S (ASL)" allows to produce a nitrogen fertilizer out of natural resources like digestate, manure or similar. So, the need of buying mineral fertilizer is reduced. At least, the system helps to close the cycle of nutrients in a region.

### How does the technology work?

The TerraSaline S (ALS) consist with a humidification / dehumidification section, where the ASL is concentrated until the salt (AS) falls out. It needs heat of a biogas plant or similar. The capacity is 3 m<sup>3</sup> ammonium sulphate solution/day and can be expand in a modular system if necessary.

The wet SSA is than dried in the drying section and can be either packed into an integrated big bag unit or transported to the optional TerraGranulator. The TerraGranulator is producing a defined corn (3 to 8 mm) of the SSA by mixing it with lime. A big bag packaging system is also integrated in the container.

### How/where to use the technology?

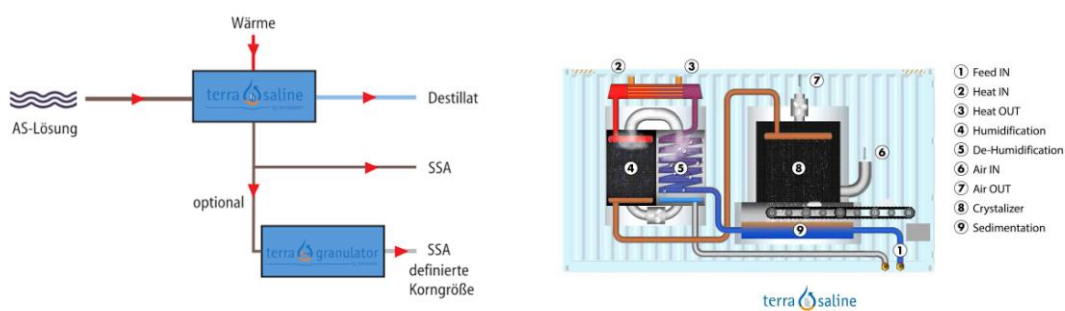
In combination with all recovery technologies in which ammonium sulphate solution is obtained from manure, digestate or wastewater. To convert the ammonium sulphate solution to a defined ammonium sulphate fertilizer (21 % N + 24 % S). It can be combined with a manure or digestate preparation such as e.g. TerraOrganic FFT & HEF.

### 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 220.000 € for a performance of 3m<sup>3</sup>/day (Modular system to adjust to needed size).



For more information: [https://nutriman.net/farmer-platform/technology/id\\_453](https://nutriman.net/farmer-platform/technology/id_453)