

Ammonium sulphate from pig manure or digestate with VP-Hobe Manure Valorisation system



Keywords: • RENURE • Reverse Osmosis • Stripper • N-recovery • Evaporation

Key facts:

- **Product Category:** Scrubber water
- **Input material:** Pig manure or digestate
- **General appearance:** Liquid
- **Nutrient Content (N-P-K %):** 7-0-0
- **Product market status:** available on the market
- **Limitation of application:** Currently max 170 kg N/ha as livestock manure (230-250 kg N/ha for derogation farms in NL). This product is a potential RENURE fertilizer which means that application will no longer be limited to 170 kg N/ha in the Nitrates Directive. Sulfur can be limiting application on grass.
- **MS Authority permit availability:** not necessary for local distribution
- **Geographical area:** max 30 kms from processing plant



Summary:

Ammoniumsulphate is produced using the VP-Hobe Manure Valorisation system. The input pig manure or digestate is first separated into a solid and a liquid fraction, using a flotation unit and a belt press sieve. A reverse osmosis unit processes the liquid fraction into a retentate concentrated N/K₂O product and a permeate product to be processed in the clean water production. The concentrated N/K₂O product will be further de-watered in an evaporator. The liquid passes through a falling film evaporator with mechanical vapour recompression. Heating the liquid in the evaporator causes water to evaporate. A vacuum lowers the boiling point, less energy is needed than when evaporating at normal atmospheric pressure. The ammonia in the incoming liquid is removed from the product flow by stripping and scrubbing the vapour coming out of the evaporator with sulphuric acid into ammoniumsulphate (7% N). The evaporator further produces a potassium concentrate.

The ammoniumsulphate is a potential RENURE fertilizer. RENURE fertilizers are based on processed manure fractions replacing chemical fertilizers. Costs for farmers will be approximately €0 per ton ex works. Application can be done using liquid manure injection systems. Low emission application techniques are compulsory to prevent ammonia volatilization.

How to use:

- **Type of farming:** conventional
- **Cultivation methos:** open field, green house
- **Recommended crops:** grassland, potatoes, corn
- **Application doses :** Depends on crop demand and soil status. Currently max 170 kg N/ha as livestock manure (230-250 kg N/ha for derogation farms in NL).

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Key product features:

- Liquid nitrogen fertilizer
- N (NH₄): 70 g/kg
- P₂O₅: 0 g/kg
- K₂O: 0 g/kg
- S: 76 g/kg
- Free from salmonella and E-coli

Key product benefits:

- Potential RENURE fertilizer
- Natural product
- Low in phosphate

Competitive position and advantages:

The production and usage of RENURE fertilizers allows farmers to process their (excess) livestock manure into a RENURE fertilizer. This product is a potential RENURE fertilizer which means that application will no longer be defined as livestock manure in the Nitrates Directive. This means application will no longer be limited to 170 kg N/ha.

Because the N and K are separated in two fractions optimal N/K balance can be achieved using precision fertilizing techniques using biobased fertilizers.

