

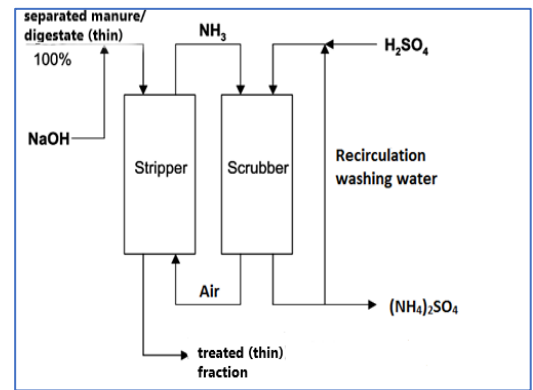
TECHNOLOGY FOR N RECOVERY AS LIQUID AMMONIUM SULPHATE OR AMMONIUM NITRATE STARTING FROM SEPARATED LIQUID SLURRY WITH "CIRCULAR VALUES" STRIPPING AND SCRUBBING PROCESS



Keywords: • separation • stripping • scrubbing • nutrient recuperation

Key facts:

- **Category of the technology:** separating and stripping thin fraction of slurry and scrubbing with H_2SO_4 or HNO_3
- **Input:** separated liquid slurry
 - **Output product(s):** liquid ammoniumsulphate or ammoniumnitrate
- **Available capacity:** Circular Values static units can be profitable when the farmer has production of 4000 kg N and more (>1000 tons manure/digestate). For lower than 4000 kg a mobile Circular Values solution can fit.
- **Focusing geographical areas:** EU28
- **Technology status:** 9



Summary of the technology:

- By increasing the temperature and/or pH of the slurry the ammonium-N will turn into gas NH_3 . Depending on the availability of heat from CHP and the capacity we add some alkaline (CAOH) to increase the pH. This gas will go into the air stream that is blown in the opposite way. This air will go into a washer. Here the washwater is low in pH due to the added acid (H_2SO_4 or HNO_3) hence liquidizing the ammonia again (NH_3 to NH_4). Depending on the acid there will be ammonium sulphate or ammonium nitrate liquid produced.
- It's a closed process so no emissions
- Capacity is recovery up to 85% of the ammonium-N from the slurry or digestate.
- Farmlevel solution or mobile unit for several farmers in the area.
- Producing high quality fertilizer. So no artificial fertilizer is needed.
- Because it removes the ammonium-N the NH_3 emission for the digestate or manure is reduced.

Competitive position and advantages:

Circular Values as a technology provider has a long-standing technical and sales experience. Unit models are operational and several mobile and static units already sold in the Netherlands and Germany

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