

EIP-AGRI practice abstract

Short title:

Technology for N recovery as ammonia nitrate/sulphate from raw digestate with "AMFER" stripping process

Summary:

The AMFER® (AMmonium FErtilizer Recovery) stripping technology enables biogas plant owners to recover nitrogen from the digestate as a valuable fertilizer. Ammonia is removed from the liquid and washed with an acid to produce an ammonium salt like ammonium nitrate or ammonium sulphate. The produced fertilizer has a nitrogen content of 7% (ammonium sulphate, 35%) or 18% (ammonium nitrate, 52%).

The AMFER is primarily designed for digestate, but can also operate on all kinds of waste streams. The system is operated as a batch process or as a semi-continuous process. The AMFER process tank is designed to enable the treatment of thicker and more viscous products, up to 10% DM. Therefore any digestate from biogas plants can be treated in the AMFER, without separation up front. A typical removal efficiency is 50% on mineral nitrogen, although removal of > 85% is also possible.

The AMFER is available at any size needed, starting from a 10.000 tons / year digestate. There is from a technological point of view no maximum size. The installation is designed to operate at relative low temperatures, typical waste heat can be reused from biogas plants. In proper maintained conditions there are no emissions to the environment, thus using the AMFER reduces nitrogen emission from manure storages. The AMFER can also be used to control the Nitrogen levels in the digester, which is required when feeding nitrogen rich streams like poultry manure, wheat or slaughterhouse waste. Another benefit is that the AMFER process can be used as pasteurisation. That's important when feeding animal byproducts, or when the digestate needs to be exported.

For more information: https://nutriman.net/farmer-platform/technology/id_455