

EIP-AGRI practice abstract

Short title:

Technology for N recovery as dried digestate and ammonium sulphate from solid fraction digestate with "Biogas Bree" chemical scrubbing of exhaust air during drying process

Summary:

Anaerobic digestion (AD) is a well-established method for the treatment of organic (waste) streams and for biogas generation. The hygienised remains of biogas production – digestate – contain the resilient organic fraction, water, and micro- and macro-nutrients from the digested (pig) manure and other organic (waste) streams. Post-digestion of the manure-input line at Biogas Bree (B) consists of separating in a solid and liquid fraction and/or drying (belt dryer/fluidized bed dryer) the solid fraction while scrubbing the exhaust air, saturated with ammonia, with sulfuric acid. In a chemical scrubber, acid is added to the washing water to remove the ammonia and a part of the odour compounds from the exhaust air. Water, acidified with sulphuric acid (96 % or 98 %), flows continuously over the filter package. This humidifies the filter. The acidic washing water reacts with the ammonia in the air. A salt (ammonium sulphate) is formed. Per kilogram recuperated ammonia 1,5 litres of sulphuric acid is needed. When the washing water is saturated with ammonium sulphate it is discharged - making room for new water and acid to form new washing water. About 15-20 litres of ammonium sulphate is produced/discharged per kilogram of ammonia that is recuperated from the exhaust air. The specific model Biogas Bree handles is a modified scrubber using the ammonium sulphate solution as a first-step dust washer.

For more information: https://nutriman.net/farmer-platform/technology/id_273