



Technology for N & P recovery as hygienized fertilizers from liquid manure and digestate with the two-stage Regenis process via in field dewatering and drying

Keywords: fertilizer recycling -> via biogas plant + Regenis GE dewatering + Regenis GT dryer

Key facts:

Category of the technology: Physical separation nutrient recovery

Input dewatering: liquid manure or digestate –1.000 to 4.000kg/h
and/or **Input dryer:** solid bulk from manure or digestate– 250to 1.000 kg/h

- **Output dewatering:** Hygienized liquid fertilizer:750 to 3000 kg/h;%N, P₂O₅; K₂O depending on input material and the grade of dewatering technology
- **Output dryer:** hygienized solid fertilizer50 to 200 kg/h**1,8%N; 2,8 % P₂O₅; 2,9 %K₂O**depending on input material and grade of separation technology
- **Available capacity:**1.000 – 4.000 kg/h
- **Technology status:** many units in the fields, well established
- **Focusing geographical areas:** Germany



Summary of the technology:Regenis GT Separation and drying

Organic valuables and residues from bio-, sewage and animal and food production are increasingly - and worldwide - becoming a problem in air and water. With the participation of biogas plants - regional circular economies between plant production, animal production, biogas and fertilizer production can be realized very economically. REW Regenis offers the "Regenis GE separators" with which the amount of manure in the fattening can be reduced by up to 20% using up to 80% of the bioenergy contained in the slurry as a WIN-WIN strategy in Biogas production. The Regenis separator is a pulling screw separator, which performs the water separation and the pressing process separately. The solid is fed to the Regenis GT dryer. The Regenis GT fermentation residue dryer is a fluidized track indirectly heated by flue gases. On the discharge side, the dried fermentation residues are discharged downwards and the flue gases cooled during indirect heating are discharged upwards into the chimney. The amount of exhaust air is low – compared to competitors approx. 1/100 – because it is not dried with air in the product, but only the amount of water vapor is produced as exhaust air, which is cleaned in a compact scrubber, or can be used for nitrogen production, depending on the version of the Regenis GT. The filtrate fertilizer can be used in plant production according to the farm's own areas and the fertiliser prearrangement on site.

Competitive position and advantages:

- High efficient and less energy use and low operating cost
- 50% of thermal energy input is recoverable, using Steam
- High separation rate of nitrogen 30 – 60% and phosphor 30 – 60%
- Sanitation of the products ,ready for the circular economy
- only one hundredth of exhaust air to belt dryer, compact cleaning

Regenis GT dewatering & dryer unit removes the total fermentation residue from the customer and concentrates the nutrients in hygienized solids and liquid fertilizers. 50% of thermal energy input is recoverable, by heat recovery out of the steam which comes out of the dryer. Less emissions by using compact washer.

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