ANPHOS®

Sustainable recovery of phosphate

Colsen

water, energy & environment

ANPHOS®

Application

In wastewater or digestate large amounts of phosphorus can be present. With stringent phosphorus discharge limits of below 2 mg/L it is key to remove this nutrient in the most sustainable way. Colsen offers this solution with its ANPHOS® technology. The ANPHOS® technology focusses on recovery of phosphorus rather than removal of phosphorus. Phosphorus is recovered as struvite (magnesium ammonium phosphate) which is applied as phosphate fertilizer or as substitute for the depleted phosphate ore.

The sustainable way of recovering phosphorus with the ANPHOS® technology leads to an improved business model of the wastewater or digestate treatment plant reducing operational costs and closing the phosphorus nutrient cycle.

ANPHOS® is mainly applied on wastewater streams with 50 mg P/L or higher from for example:

- Potato processing industry;
- Sidestream treatment of municipal STP;
- Digestate treatment.

References

Ecofuels – Well	(NL)
Peka Kroef – Odiliapeel	(NL)
Pizzoli – Budrio	(IT)
Lamb Weston/Meijer – Bergen op Zoom	(NL)
Lamb Weston/Meijer – Kruiningen	(NL)
Lamb Weston/Meijer – Oosterbierum	(NL)
Asturias	(ES)
STP 's Hertogenbosch	(NL)
STP Tiel	(NL)

Process

An ANPHOS® system is a two-step batch system. In the first part of the system wastewater is aerated to induce a positive pH shift. This stripping tank is aerated by a low-maintenance aeration system.

Secondly, magnesium is dosed in a reaction tank. Magnesium reacts with the present phosphorus (as phosphate) and ammonium forming struvite. After this precipitation phase, struvite is settled, discharged and dewatered. The formed product is readily accessible as substitute for agricultural fertilizers or as a phosphate ore.

Result

ANPHOS® induces a total operational cost reduction of 60 -70 % compared to conventional dephosphatation. This reduction is due to:

- reduction in chemical costs
- reduction of sludge production
- reduction of ammonium load on subsequent treatment system
- production of struvite

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