

TECHNOLOGY FOR P RECOVERY AS PELLETIZED STRUVITE STARTING FROM DIGESTED SLUDGE AND WASTEWATER WITH “NURESYS” CRYSTALLISATION PROCESS



Keywords • *phosphorus recovery* • *struvite*

Key facts:

- **Category of the technology:** Struvite crystallization
- **Input:** Digestate dewatering liquor, digestate, wastewater
- **Output product(s):** $\text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$ struvite pellets
- **Available capacity:** 0.1-2.5 tons/day
- **Focusing geographical areas:** Europe and agents world wide
- **Technology status:** TRL 9



Summary of the technology:

Uncontrolled struvite formation is a major cause of high maintenance costs and downtime on municipal sludge processing lines especially when combined with biological phosphate removal. The NuReSys technology wants to tackle these operational problems by controlling the struvite process.

NuReSys technology can be applied both on digested sludge or post dewatering. Even combining applications on both digested sludge and post dewatering have already been designed and are operational at full industrial scale.

The classical application of struvite precipitation is on municipal wastewater treatment plants (MWTP) at the outlet of the dewatering or on industrial water wastewater treatment plants at the outlet of an UASB reactor. A straight forward stripper/crystalliser combination can be installed. Struvite harvesting is quite simple because the struvite, at 1.7 specific density, can easily be separated from the effluent.

The second approach directly applied on digested sludge is a stripper for pH control and stirred tank reactor with MgCl_2 addition to promote active struvite formation.

Competitive position and advantages:

- Works both on digestate and reject liquor in municipal sludge lines
- Can be used also for industrial wastewater and source separate flows
- Main driver is phosphate management, resulting in limited payback
- Full scale proven technology and ready to contribute to a closed loop phosphorus driven feed/food agriculture
- Scaling prevention (based on limiting free soluble phosphate) and improvement of dewatering of the bio solids.
- Reducing the phosphorus load returning to the head of the MWTP.

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