Recovery and utilisation of nutrients for low impact fertiliser

Fertiliser product fact sheet – Struvite

Slow release phosphorous fertiliser recovered from anaerobic effluents

As a result of the depletion of phosphate rock reserves, the use of struvite-based fertilisers is becoming an increasingly interesting alternative to conventional fertilisers because their nutrient sources (nitrogen and phosphorus) originates from livestock and human waste. Struvite is the common name for magnesium ammonium phosphate hexahydrate ($MgNH_4PO_4 \cdot 6(H_2O)$ or MAP). Pure struvite has 5.7% nitrogen, 12.6% phosphorus and 9.9% magnesium. Struvite precipitation is used to recover phosphorus (and nitrogen) from wastewaters, animal manure and digestate, and is widely applied in full scale. Within Run4Life, struvite precipitation is applied at three demosites. Important factors in the production process are the concentration of the components, the pH, the mixing energy, the temperature, the source of magnesium and the presence of other ions such as calcium. Struvite is a slow-release phosphorous fertiliser, which makes it appealing for agricultural use. Drawback is the fixed N:P ratio that does not meet the requirements of most crops. Therefore, struvite is usually combined with other fertiliser products.

Key facts

- General appearance: powder, crystals, granules or pellets.
- Slow release phosphorous fertilizer.
- Purity, shape and colour depend on the type of input and applied system configuration.
- Low concentration of heavy metals.

Struvite in Run4Life

- Produced via struvite precipitation
- Demosites: Ghent, Helsingborg and Vigo

(see corresponding factsheets)

Struvite crystals and pellets in different sizes, shapes and colours.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 730285.

https://run4life-project.eu