

STRUVITE FROM DIGESTATE AND MANURE BY "REVAWASTE" PROCESS



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Keywords: • biofertilizer • slow release • phosphorous • nitrogen

Key facts:

- **Product Category:** PFC (Product Function Category) as of EC Fertilizers Regulation revision COM (2016) 157
- **Input material:** pig manure digestate, $MgCl_2$ and NaOH
- **General appearance:** powder or little solid particles
- **Nutrient Content (N-P-K %):** 5/28/0
- **Product status:** advanced development stages
- **Limitation of application:** In the absence of approval of the framework for the new facultative European regulation on fertilising products. In many countries, struvite cannot currently be used as a biofertilizer, as it is classified as waste.
- **Permit availability:** N/A
- **Geographical area:** EU28
- **Price range:** 250-400 €/t



Summary:

With the extensive depletion of phosphate rock resources, the use of struvite-based materials as an ecological fertilizer is becoming an increasingly competitive alternative to traditional fertilizers because their nutrient sources (nitrogen and phosphorus) come from livestock waste. Therefore, struvite is one of the processes to recover phosphorus from wastes, animal manure and digestate.

It is a crystal that can be used directly as fertilizer on the fields of cultivation and that supposes advantages with respect to the habitual fertilizers and complements the technical and economic aspects of the management of agro-livestock waste.

In addition, the recovery of phosphate and ammonium in struvite form allows the sustainable management of a non-renewable natural resource, phosphate, and the improvement of the quality of aquatic ecosystems.

How to use:

- **Type of farming:** conventional
- **Cultivation methos:** open field or greenhouse
- **Recommended crops:** permanent grassland, cereals for the production of grain, root crops and plants harvested green from arable land by area
- **Application doses:** 0.140 t/ha

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Key product features:

- Mineral salt.
- Slow release fertilizer.
- Powder or pellet presentation.
- High phosphorus content product.

Key product benefits:

- Lower environmental risk of leaching.
- Greater efficiency in its action.
- Equal or even better effectivity for phosphorus compared with regular mineral phosphorus fertilizers.
- Does not contain metals or other dangerous compounds.
- Cheaper than conventional phosphorus removal methods.
- Reduces the costs of managing livestock waste.

Competitive position and advantages:

Why this product is best for solving nutrient recovery problems?

Struvite has been found to be a good slow release fertilizer and provides essential nutrients such as magnesium, nitrogen and phosphorus for agriculture and horticulture. Struvite is obtained by means of a crystallization reactor thanks to the recovery of the nutrients present in the digestate from the anaerobic digestion of pig manure. The use of struvite as a fertilizer is its low concentration in heavy metals compared to the phosphate rock usually used in the manufacture of synthetic fertilizers. Due to its slow release, the delivery of nutrients is carried out gradually and the plant consumes them according to its requirements, thus avoiding the leaching of these nutrients and their arrival to the water masses, as can occur when synthetic fertilizers are applied. It is therefore required less frequency of application and there is no burning of the plant, even at high rates of application.