

EIP-AGRI practice abstract

Short title:

Calcium phosphate from sewage sludge ash by “Ash2Phos” process

Summary:

EasyMining recovers P from incinerated sewage sludge ashes. With the Ash2Phos technology, a clean precipitated calcium phosphate (PCP) can be recovered from sewage sludge.. The process consists of 3 sequential steps: a first acidic step, a second alkaline step (where intermediate products are produced), and finally a conversion step where the intermediates are processed into final products. More than 90% of P in the ash is recovered.

The main output product is calcium phosphate, a white powder or granule phosphorus-calcium rich product ($\text{Ca}_5(\text{PO}_4)_3\text{OH}$, 17% P, 35% Ca) with a very low content of heavy metals ($\text{Cd} < 0.1 \text{ mg/kg}$). The water solubility is low, but P is highly available as demonstrated by the high solubility in neutral ammonium citrate. It is already proven that phosphate is slowly released, the fertilizing efficiency is therefore high. It can be applied as such on the field (as root placed fertilizer or spread as granules with common equipment), or transformed to other phosphate fertilizers (MCP, DCP, MAP, DAP, etc). In addition, PCP can also be used for animal feed, compound feed and mineral feed. In 2023, 13,000 t/a PCP (from 30,000 t ash) will be produced. The price is matter of market and negotiation.

Heavy metal and Fluor concentrations are lower than in conventional P fertilizers ($\text{Cd} < 0.1 \text{ mg/kg}$). Therefore, it can be used for field application and in feed products. The P recovery process is independent from ash quality fluctuations (so no limitations regarding precipitation metals like Fe) and comes with highly efficient heavy metal separation to guarantee high P product quality.

For more information: https://nutriman.net/farmer-platform/product/id_448