

Recovery and utilisation of nutrients for low impact fertiliser



Fertiliser product fact sheet – Phosphoric acid (H_3PO_4)

Phosphorus recovered from anaerobic sludge

Phosphoric acid (H_3PO_4) can be extracted from sewage sludge ashes as a leachate liquid or crystalline solid, and is highly soluble in water. In municipal sewage sludge as well as in anaerobic digested sludge a considerable amount of phosphorus in the form of different phosphate-compounds is present. At the demosite in Ghent the recovery of these phosphate-compounds from anaerobic sludge is explored.

First, the anaerobic digested sludge needs to be pre-treated by incineration or pyrolysis. Thermal processing modifies the chemical and physical structure of the substrate while affecting P speciation. This enables the recovery of ortho-phosphate or phosphoric acid. Phosphoric acid from incineration ash contains around 8% phosphate (P_2O_5) and is a multi-functional mineral acid used for manufacturing fertilisers, animal feed or other industrial applications. In Europe around one million tonnes of phosphoric acid are applied yearly.

Key facts

- General appearance: liquid solution
- Raw material for industrial applications, including fertiliser production.
- In high demand (one million tonnes in Europe)

Phosphoric acid in Run4Life

- Produced from incinerated anaerobic sludge
- Demosite: Ghent

(see corresponding factsheets)

