VALUEWASTE - A glimpse into P-recovery



Urban Biowaste

Energy source:

Digestion Biomethane Energy digestate = protein production

Nutrient source:

Nitrogen and Phosphorus Conversion into protein Recovery as mineral compounds with added value

Selective collection Social Acceptance

Focus on Phosphorus Recovery





This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No.818312.





Different pilot units were combined

Raw feed line / Unpacking / Sorting 4 tonnes/day

Digestion 100 m³

Dewatering 1 m³/h

Insect farm (Black Soldier Fly)

P recovery by struvite formation

N recovery by NH₄-sulphate (solid extraction)

Combining struvite/NH₄-sulphate







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Phosphorus Recovery

DIGESTION: Phosphorus and Nitrogen converted into PO_4 -P and NH_4 -N = transfer from solids to water matrix

DEWATERING: Solids extraction + Production of PO₄-P and NH₄-N rich filtrate

P-RECOVERY: Crystalizing MgNH₄PO₄.6H₂O by adding Mg²⁺ and pH control Harvesting produce struvite + treated filtrate to next stage for NH₄ recovery



Start-up

Increasing PO₄-P and NH₄-N levels Dewatering PE selection Larvae growth initiated Starting 12 month operation period Expected production 2 – 2,5 kg struvite/day





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