

High-Efficiency P-Recovery and Digester Protection



CalPrex®
Pre-Digestion P-Recovery



MagPrex™
Sludge Optimization and P-Recovery

Maximize Phosphorus Recovery with Minimal Sludge Protection

The CalPrex + MagPrex combination captures 50%+ total phosphorus entering treatment plants, with a minimal addition of chemicals.

CalPrex Process

- Harnesses fermentation to acidify bio-P sludge
- Solubilizes over 65% of phosphorus in the fermentation process
- Isolates the soluble phosphorus ($\text{PO}_4\text{-P}$) in the dewatered fermented sludge centrate
- Precipitates soluble phosphorus ($\text{PO}_4\text{-P}$) by calcium hydroxide in the reactor
- Maintains the solution around 6.5 pH
- Recovers phosphorus as brushite ($\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$), a market-ready, high-quality fertilizer

MagPrex Process

- Converts the remaining soluble phosphate ($\text{PO}_4\text{-P}$) in digested sludge to struvite ($\text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$)
- Air strips CO_2 and adds magnesium chloride
- Recovers phosphorus as struvite, a market-ready fertilizer
- Reduces the phosphorus recirculation by 90%

THE BENEFITS

CalPrex + MagPrex:
A Combined Approach



Reduce Phosphate Recycle Load up to **90%**



Reduce Polymer Consumption up to **30%**



Reduce Disposal Costs up to **20%**



Reduce Maintenance Costs up to **50%**

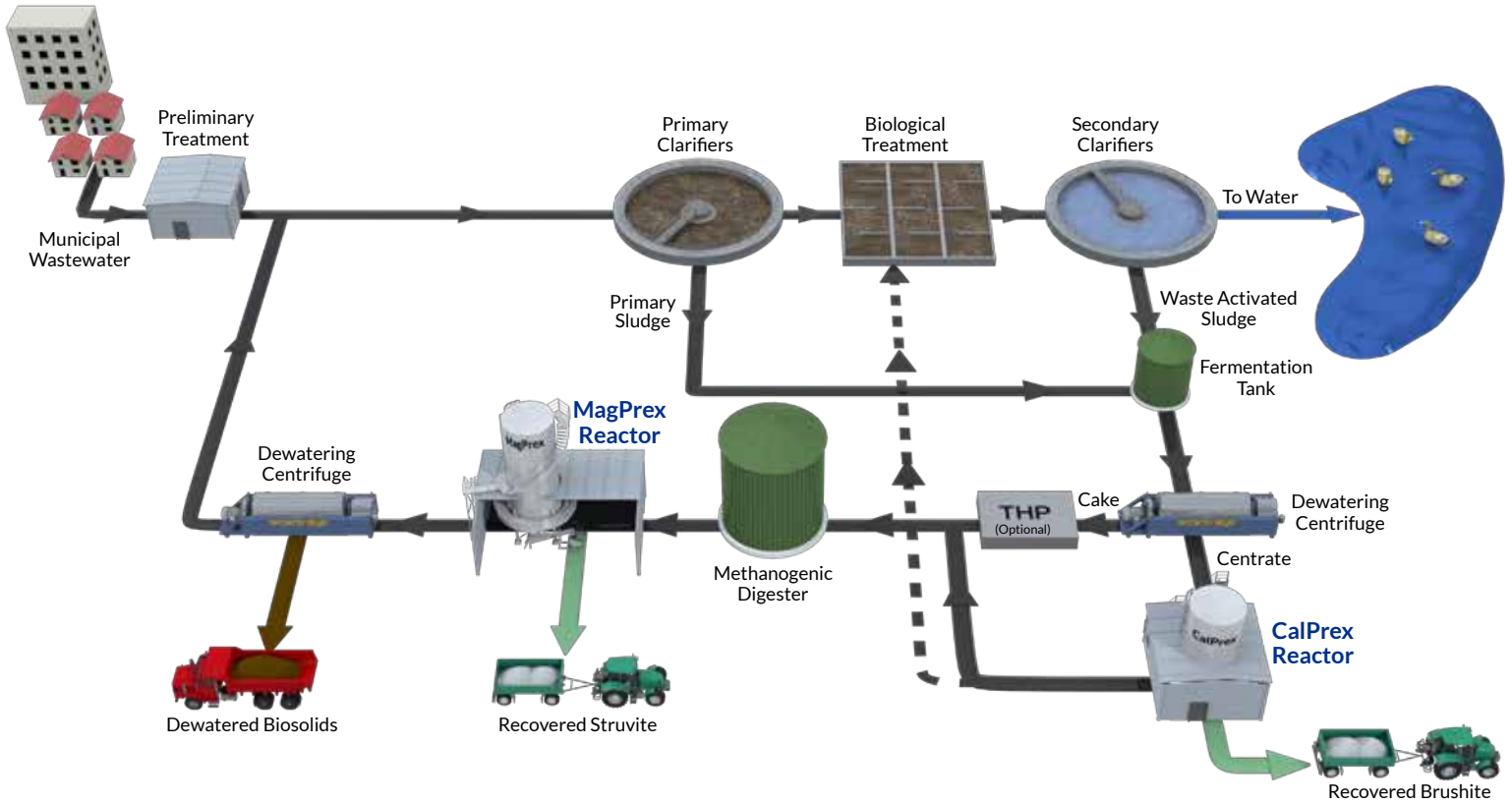


Recover Over **50%** of **Total Phosphorus**



PROCESS: CalPrex® & MagPrex™

Changing our nutrient recovery technology's name to MagPrex (formerly AirPrex) signifies our commitment to continued innovation for all our North American customers.



	Centrate Recovery	WAS Fermentation + Centrate Recovery	CalPrex®	MagPrex™	CalPrex® + MagPrex™
Reduce Phosphorus Recycle	✓	✓	✓	✓	✓
Recovery of Marketable Fertilizer	✓	✓	✓	✓	✓
Reduce Struvite Maintenance	✓	✓	✓	✓	✓
Reduce Digester Struvite Buildup	✗	✓	✓	✓	✓
Improve Sludge Cake Dryness	✗	?	✓	✓	✓
Reduce Polymer Demand	✗	?	✓	✓	✓
Reduce P Content of Sludge	✗	✓	✓	✗	✓
Compatible with THP*	✗	✓	✓	✓	✓
Lower Chemical Cost Per P Recovered	✗	✗	✓	✗	✓

*Thermal Hydrolysis Process

The CalPrex® Technology is licensed by Nutrient Recovery and Upcycling LLC.