HYDROFLUX epco

is a business dedicated to providing world leading wastewater technology and processes to Australian Water Authorities and Councils.

cnp Technology Water and Biosolids Corporation designs and supplies systems for nutrient recovery and sludge optimisation. Led by a team of wastewater industry veterans and supported globally by engineers with decades of experience in biosolids treatment, cnp continues to pioneer innovative wastewater systems solutions.

AirPrex®

The future of sludge treatment

Optimises processes,
Saves resources

Sludge optimisation and MAP-Removal in Wastewater Treatment Plants with biological phosphate elimination

- *Prevent struvite scaling*
- *Reduce O&M costs*
- *Recover Phosphate*

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Struvite Mineral Buildup Leads to Reduced Plant Capacity

In wastewater treatment plants with biological phosphate elimination, high phosphate concentrations occur in the digester's anaerobic environment.

As a result, struvite (or MAP: magnesium ammonium phosphate) builds up inside the pipes, pumps and process equipment, causing problems including:

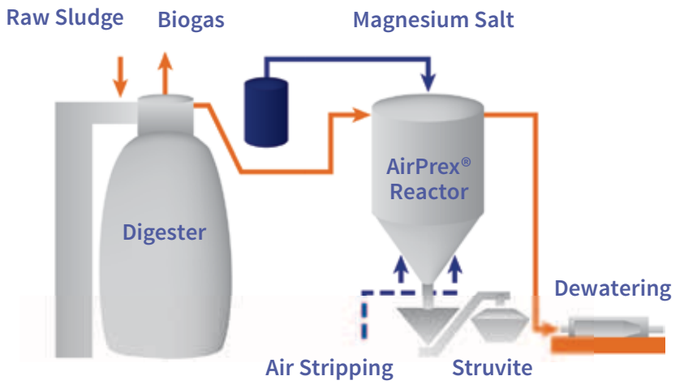
- Reduced plant capacity due to decreased flow through the digester's pipes.
- Reduced dewatering efficiency due to increased water bounding effects in the sludge by high phosphate levels.
- Increased phosphate loads in the return liquor, which leads to a less efficient phosphate elimination process and causes crystallization problems in pipes and pumps.

How Airprex® optimizes the sludge treatment process like no other system.

Until now, the main methods of Struvite removal have been:

- Costly, recurring chemical treatments.
- Phosphourous removal after dewatering.

Unlike these other systems, AirPrex® is a complete sludge optimisation and phosphorus recovery system that's installed between anaerobic digestion and dewatering. The boundary conditions for Struvite precipitation are set by air stripping in the AirPrex® reactor and the addition of a magnesium salt product. This combination of biological phosphate elimination and the AirPrex® system achieves unrivalled effectiveness in terms of dewatering efficiency and cost savings.



AirPrex® Removes Struvite while Significantly Improving Efficiency.

The AirPrex® process has been designed to produce maximum return on investment and make a significant impact on your treatment plant's cost of operations. The elimination of Struvite through this unique process leads to a 90 to 95 percent phosphate reduction in the returned liquor (up to 15 percent related to the incoming P-load).

Reduce Polymer usage by up to 30%.

By optimising the sludge and removing most of the phosphate before dewatering, the water bounding effect of the phosphate is mitigated before dewatering. As a result, the dewatering process is more efficient and less polymer is required.

Reduce Disposal Costs by up to 20%.

By optimising the sludge and removing most of the phosphate before dewatering, the dewatering process is more efficient, allowing for drier cake solids.

Reduce Phosphorus Recycle Load by up to 90%.

Eliminating the majority of the P-recycling load thereby increasing the overall efficiency of the biological treatment process.

Reduce Maintenance Costs by up to 50%.

With the AirPrex® struvite removal process, pipe treatment and repairs are minimal to maintain the desired capacity of the digester pipes.

Increase Revenue up to 10% from Fertilizer.

In addition to removing Struvite, you can also resell the high- phosphate dry solids as fertiliser.

CASE STUDY

AirPrex® saves plant O&M and disposal costs

The wastewater treatment plant in Mönchengladbach, Germany installed an AirPrex® system in 2009.

Since then, the plant has achieved phosphate removal of 90 percent and regularly resells its high-phosphate fertiliser. As the treatment plants dewatering rate has increased 4-5 %, it has saved a tremendous amount of money per year in operational costs, as compared to P-removal by means of ferric chloride.

SPOTLIGHT

Phosphorus Regulations Affecting Treatment Plants

On Phosphorus recycling the EU commissions communication states:

"Recycling of phosphorus is a vital resource for food production, but it has significant security-of-supply risks and its current use involves waste and losses at every stage of its lifecycle...

The commission is considering developing a policy framework on phosphorus to enhance its recycling, foster innovation, improve market conditions and mainstream its sustainable usw in EU legislation on fertilisers, food, water and waste."

These initiatives suggest a need by treatment plants to actively monitor and control their phosphate discharges – and AirPrex® can be an excellent tool in this effort.

An Optimal Solution – and Easy to Implement.

Your partners at Hydroflux can easily incorporate this value-producing technology into your operation in any plant setting, including retrofitting it to your existing infrastructure.

Contact us today to get started.