



Sustainable Phosphorus Recycling

EkoBalans' process and our technology eco: P can be used to recover and recycle up to 60% of the phosphorus received at WWTPs – free of heavy metals and other undesirable substances.



Sustainable Phosphorus Recycling



High levels of phosphorus and nitrogen in sludge dewatering liquids create unnecessary internal loading on WWTPs with EBPR (enhanced biological phosphorus removal). By precipitating phosphorus as struvite ($MgNH_4PO_4 \cdot 6H_2O$) with EkoBalans' technology eco: P, the load of phosphorus and nitrogen is reduced. Struvite extraction from sludge dewatering liquids before digestion gives higher extraction rates and offers many process advantages. Struvite can also be extracted from other phosphorus-rich flows such as digestate from biogas production, slurry, and residual flows in the food industry.

EKOBALANS' STRUVITE PROCESS

1. pH increase by aeration.
2. Batch-based struvite extraction process with a very short retention time and the addition of magnesium chloride.
3. Separation of microcrystals with EkoBalans' patented technology and collection in big bags or a container.



EkoBalans refines recovered struvite into fertilizers for local use.

Since the retention time in the precipitation tanks is very short, it is possible to achieve high capacity in small tanks and thus very compact installations. A 40-foot container plant is sufficient for up to 70,000 PE. The process is simple and robust, as well as resource- and energy-efficient. The recovered struvite is cleaner than the phosphates used in commercial fertilizers.

BENEFITS FROM EBPR + STRUVITE EXTRACTION

- Recycling of phosphorus (and nitrogen) without heavy metals
- No, or small amounts of, chemical precipitants
- Lower sludge production than with chemical phosphorus removal
- Reduced internal loading of phosphorus and nitrogen
- Less problems with struvite clogging
- Reduced risk of phosphorus exceeding threshold levels in the outgoing flow from the WWTP



OUR PLANTS

EkoBalans' struvite plants are constructed using standard components and are available in three sizes:
eco:P 20 5 m³/h (20-foot container)
eco:P 40 10 m³/h (40-foot container)
eco:P 100 > 10 m³/h (fixed installation)

The process is fully automated. The time required for control, chemical replenishment, cleaning, and struvite handling is about two working hours per week for one container plant. Service is normally carried out twice a year.

