## TRAINING MATERIAL

Title:

Technology for N&P recovery as solid manure and mineral concentrate from pig and cattle slurry by belt press sieve and reverse osmosis

Training:

**What is the technology?**

- Local transporters collect the slurry from local pig, cattle or mink farmers and transport this manure to the manure storage at Vlako's. The process starts in a reactor tank where sulphuric acid and ironsulphate are added to the slurry.
- From the reactor tank the manure goes to the sieve belt press.
- Within this belt press sieve the liquid part of the manure, with minerals is separated from the solid manure, which will later be pasteurized for export and sales as organic phosphate fertilizer.
- The liquid fraction is collected and send to the flotation unit.
- After the flotation unit the liquid fraction goes through a paper filter where left over organic materials are filtered out.
- From the paper filter the liquid fraction goes through the reverse osmosis where membrane filtration separates clean water from the mineral concentrate. Only after the last step of the process, the reverse osmosis, the product can be called mineral concentrate. Reverse osmosis is considered a best available technique to separate clean water for surface water discharge, from liquid manure fractions.

**Who is the vendor of the product?**

Vlako BV (http://www.vlako.nl/ ) is a manure processing company in the Netherlands.
Vlako processes approximately 135.000 m3/year slurry from pigs, cattle and mink into a pasteurized solid fraction, mineral concentrate and clean water.

**Which other product/technologies are provided by the vendor?**

Products of this technology are P520 and P594.

**Which are the advantages of the technology and the problems addressed?**

Achieve emission reduction by separation at the source and also to develop high-quality manure streams that are valued regionally as a substitute for chemical fertilizer and dry manure pellets (circular agriculture).

**How does the technology work?**

See "What is the technology?".

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**How/where to use the technology?**

Input is slurry from local pig, cattle or mink farmers. Output is P520 and P594.

**Technology features:**

- Technology proven in practice.
- Reverse osmosis is considered a best available techniques to separate clean water for surface water discharge, from liquid manure fractions.

**Fertilizer production**

The mineral concentrate is allowed as pilot RENURE fertilizer in NL which means that application is no longer defined as livestock manure in the Nitrates Directive.

**Which are the authority permits and in which EU countries?**

RENURE.

**How much does it cost?**

Please ask directly to the vendor.

For more information: https://nutriman.net/farmer-platform/technology/id_519

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