



**Technology/Service:** Nutrient recovery

**Information by:** Sustec

**Date:** 31st January 2017

**COMPANY INFORMATION**

**Company Name:** Sustec BV

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**Web Site:** www.sustec.nl

**Address:** Agro Business Park 7a

**State:** The Netherlands

**City:** Wageningen

**Zip Code:** 6708 PV

**TECHNICAL CONTACT**

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**City:** Wageningen

**State:** The Netherlands

**Zip Code:** 6708 PV

**DEMONSTRATION SITE CONTACT**

**Site Name:**

**Contact:**

**Title:**

**Phone:**

**Email:**

**Address:**

**City:**

**State:**

**Zip Code:**

**INITIAL TECHNOLOGY OVERVIEW**

**This information is to guide in the development of a more specific and detailed Technology Information Request. Please answer the following questions for each Technology or Service provided.**

**What is the name of the technology or service you provide?**

Nutrient recovery

**Describe how this technology is used in a larger Nutrient Management System. Please be as detailed as possible.**

Recovery of nitrogen (as ammoniumsulphate) and phosphouros (as struvite).

How many systems do you have installed on dairy farms or other livestock operations?

	Number of Sites	Size of Installations
Dairy	N/A	
Pork	N/A	
Poultry	N/A	

Do you have a preferred region or area for the location of projects?

No.

Location of farm(s)?

N/A.

What's the smallest and largest farm using your system?

N/A.

Input and output of your unit/system – do you have a mass balance analysis?

*If a mass balance is available, please attach or include as a separate document.*

Available upon request and based upon an actual project.

Input material description/characteristics:

*For example: raw manure, digestate, screened digestate, suitable non-farm feedstocks, other.*

Screened digestate or other industrial or agricultural wastewater streams.

**Does the technology treat the full manure stream for a farm or a fraction of the stream?**

Mainly focussed on fraction.

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**Do you consider this a mature system or ongoing farm development?**

Ongoing farm development.

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**Any weather constraints?**  Yes  No *Please describe.*

**Any bedding constraints?**  Yes  No *Please describe.*

Solids foundation required.

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**Output materials description and characteristics:**

*Please include the % of the total stream for each material, i.e. 10% fiber and 90% screened liquid by weight.*

**Do the Outputs of the process have a resale market identified?**  Yes  No

*If so under what brand name or who is the contract with?*

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**Is this process scalable and to what extent (top and bottom limits)?** *Please describe.*

Fully scalable.

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**Do you have a known scaling factor?** *Please describe.*

**Does this technology require any air input?**  Yes  No

**What is the preferred air connection?** *For example: psi, fitting size, air quality.  
If not distributed by the system please list each connected device.*

**Does this technology require any water input?**  Yes  No *If so, please describe.*

**What is the preferred water connection?** *For example: psi, fitting size, water quality, gpm.  
If not distributed by the system please list each connected device.*

**Does this technology require any electrical input?**  Yes  No *If so, please describe.*

Specific based upon project size.

**What is the preferred electrical connection?** *For example: phase #, voltage, full load amps.  
If not distributed by the system, please list each connected device.*

Based upon clients requirements.

**Does this technology require any mechanical input?**  Yes  No *If so, please describe.*

Depends upon project.

**What is the preferred mechanical connection?** *For example: horsepower, connection, rpms.  
If not distributed by the system please list each connected device.*

Does this technology require any special plumbing?  Yes  No *Please describe what is required.*

Depending upon water quality, pH level of the wastewater stream and possible elevated temperatures.

Does this system require and special foundations or pads?  Yes  No *If so, please describe.*

Solids concrete foundation.

Do you consider this technology part of a larger system that you provide?  Yes  No *If so, please describe.*

Does your system require any other components that you do not provide or are not included in your proposal?

Yes  No *If so, please describe.*

Removal of SS, increasing pH (option), increasing temperature (option).

How is the system delivered to the site? *For example: skid mounted, assembled on site, constructed on site.*

Skid mounted.

Is this system portable or configured in such a way that it could be easily transported for use in several locations?

Yes  No *Please describe.*

Has your technology been accepted by the NRCS and is it included into a practice standard?  Yes  No

*Describe if necessary.*

Are there any unusable or hazardous byproducts of this process?  Yes  No

*If so, please describe the product and recommended means of disposal.*

What spare parts and redundant components are included with the system?

Depends upon size and project.

How is the system controlled and what are the components and capabilities of the control system?

What is the usable life of the system?

30+ years

What is the salvage value at the end of the usable life?

20 %.

What is the educational and technical level of competence for the operation of the system?

Ability to work with water treatment technologies, membranes, acidic solutions/chemical, elevated temperatures.

What level of maintenance is required for the system?

*Please indicate if rebuilds or major components must be replaced and what the frequency is for these components.*

Are consumables used in the process?  Yes  No

*Please provide the nature and purchase relationship for these consumables. For example: proprietary, special contract, generally available.*

Which of these NRCS codes would your technology be classified under? Check all that apply. Add if necessary.

CODE	NRCS DESCRIPTION	APPLIES
472	Access Control	
560	Access Road	
309	Agrichemical Handling	
371	Air Filtration and Scrubbing	✓
591	Amendments for the Treatment of Agricultural Waste	
366	Anaerobic Digester	✓
672	Building Envelope Improvement	
372	Combustion System Improvement	
317	Composting Facility	
554	Drainage Water Management	✓
375	Dust Control from Animal Activity on Open Lot Surfaces	
373	Dust Control on Unpaved Roads and Surfaces	
374	Farmstead Energy Improvement	
512	Forage and Biomass Planting	
561	Heavy Use Area Protection	
516	Livestock Pipeline	
590	Nutrient Management	✓
521A	Pond Sealing or Lining, Flexible Membrane	
533	Pumping Plant	
558	Roof Runoff Structure	
367	Roofs and Covers	
318	Short-Term Storage of Animal Waste and By-Products	
570	Stormwater Runoff Control	
606	Subsurface Drain	
635	Vegetated Treatment Area	
601	Vegetative Barrier	
360	Waste Facility Closure	
632	Waste Separation Facility	✓
313	Waste Storage Facility	
634	Waste Transfer	
629	Waste Treatment	✓
359	Waste Treatment Lagoon	✓

**Can you provide an estimate of the capital required for the installation of this technology?**

*Please include all components and designate if provided by you or others.*

Depends upon project.

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**Can you provide an estimate of the operational costs required for this technology?**

*Please include all costs and designate if provided by you or others.*

Depends upon project.

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**Is there financing available for this system?**  Yes  No *If so, what are the conditions for this financing?*

**Is the system available for lease?**  Yes  No *Please describe.*

**What sort of warrantee or guarantee do you provide with this technology?**

*Do you provide any performance guarantees or strictly defects in parts and materials?*

Both mechanical, electrical and performance warranties.

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**Explain how this system is unique or transformative and how does it improve upon or go beyond other technologies that are currently available.**

**Would you be willing to provide a location for a site visit by Newtrient?**  Yes  No

*If so, please provide location.*

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**Technology References. Please provide customers with whom we can discuss this technology and its performance.**  
*Include a company name, location, contact name and contact information.*

**Reference 1**

<b>Company Name:</b>	
<b>Company Location:</b>	
<b>Contact Name:</b>	
<b>Contact Information:</b>	

**Reference 2**

<b>Company Name:</b>	
<b>Company Location:</b>	
<b>Contact Name:</b>	
<b>Contact Information:</b>	

**Reference 3**

<b>Company Name:</b>	
<b>Company Location:</b>	
<b>Contact Name:</b>	
<b>Contact Information:</b>	

**Reference 4**

<b>Company Name:</b>	
<b>Company Location:</b>	
<b>Contact Name:</b>	
<b>Contact Information:</b>	

**Are there any other facts about this technology that you feel should be included in this document?**