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SPS Medium/Large Fermentation Unit. (MFU/LFU)

Introduction

SPS modular fermentation systems units are designed and built for dry Anaerobic Digestion (AD) of food & kitchen waste, manure, Source Separated Organics (SSO) and bio solids or sewage sludge in an entirely enclosed environment. Our modular fermentation systems consist of pre-treatment, internal transport, PLC-controlled anaerobic AD units and biogas treatment and conversion starting at capacities of approximately 1 ton per day.

SPS pre-treatment of food & kitchen waste, manure and bio solids consists of mixing with structure material, such as wood chips. SSO needs to be opened up by a slow speed SPS shredder before going into the AD process.

At the heart of the SPS fermentation system are the modular airtight AD units provide highly efficient anaerobic digestion process as well as effective leachate containment. Optimal residence times vary between 20 and 30 days. AD is carefully controlled inside these completely enclosed composting units by a control system that offers a variety of process control regimes.

Pasteurization or digestate processing is optional. SPS composting units may be used for composting – see our Product Sheet 'SPS Medium/Large Composting units'. Our systems can convert pathogenic organic waste into safely disposable and marketable Class A compost.

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The produced biogas from anaerobic digestion is usually converted into electricity and heat by CHP's. The electricity is used to operate the fermentation units, the supporting processes and composting containers. The heat can partially be used for the AD process. If sufficient battery capacity is installed self-sufficient systems can be provided; no need for services such as electricity and/or natural gas.

Another and unique possibility of SPS Fermentations systems is the direct use of biogas as cooking gas in restaurants and at food courts or pressed in bottles for household use. Biogas upgrade to natural gas is an alternative, if sufficient biogas (>250m3 biogas/hr) is produced.

Medium/Large Fermentation Unit (MFU/LFU)

The fermentation units are roll-off vessels that can be run individually or in parallel, the SPS fermentation system can be sized to fit facilities processing one to 50 tons of feedstock per day. Our MFU is specifically developed to process annual volumes between 500 and 3,000 mt of organic feedstock. Our LFU can process up to 12,500 mt/year. Biogas production between 50,000 and 200,000 Nm3/year. The modular design means that facilities can initiate with only one MFU if they choose, and then bring more into the system as demand grows. The modular design also makes the SPS composting system extremely flexible in terms of responding to problematic batches of compost and peaks in processing demand.

SPS MFU Specification

- Length overall 6,0 m
- Width overall 2,4 m
- Height overall 2,6 m
- Process volume 38 m3
- Capacity 30 m^3 (app. 80%)
- Weight app. 2.200 kg*
- Percolate tank: 50 m^3

SPS LFU Specification

- Length overall 12,0 m
- Width overall 2,4 m
- Height overall 2,6 m
- Process volume 77 m3
- Capacity 62 m^3 (app. 80%)
- Weight app. 3.800 kg*
- Percolate tank 1050 m^3

Option packages:

- Pasteurization unit
- Gas storage system
- SPS Composting units
- Biofilter
- All stainless-steel construction
- Cold-weather insulation package

SPS Fermentation Unit Features

- Robust batch and therefore reliable system
- Processing of multiple biomass types
- Self sufficiency
- Sophisticated process control application
  Low capital and operating costs.
- Modularity
  - up-front capital investment minimization
  - capacity to grow with demand
  - flexibility