Unique system for pre-treatment of food waste

- All-in-One
- Proven concept
- Optimal utilization of resources
- Foot print
- Cost efficient
- Problem free operation
- Adjustable standard layout
1. Reception
BioPrePlant-Systems starts with a system for receiving food waste. In this Multi Waste System food waste from households, supermarkets, restaurants and other waste generating activities is mixed without any sorting or de-packaging. The food waste is automatically transported further into the system for treatment and separation.

There are many solutions to receiving and in-feeding systems; each system is therefore designed according to each customer’s specific needs.

2. BioPreCrusher
BioPreCrusher is a process machine that contains a crusher, a transport conveyor and a magnet. In this stage of the process, bags and other food containers such as tins are opened and ferrous metals are removed. Larger non-crushable objects are automatically discharged from the machine.

The BioPreCrusher is a very important part of the BioPrePlant-System as it ensures that undesired metals and other large objects won’t enter the process.

3. Material Transportation
All process stages in a BioPrePlant-System are connected with spiral conveyors or pumps. This ensures a clean, efficient and nice looking installation; it also minimizes spillage and leakages during operation, which improves the overall working environment and surroundings.

4. BioSep® Stage 1
BioSep is a patented process machine that has been specially developed to separate plastics and packaging material from all kinds of food waste. The process is very efficient and unique in its ability to separate, wash, and dry plastics and food packaging material before these fractions are discharged out of the machine as reject.

BioSep has 4 modes of operation;

In Feeding, BioSep is continuously fed with food waste with a spiral conveyor, depending on the moisture content in the waste an adjustable amount of process liquid is added to the unit. Separation inside the BioSep is achieved through a rotor that pulls the material pass a sieve and simultaneously presses the soft digestible fractions through the sieve. This fraction is collected under the BioSep as a biosubstrate, which requires further processing.

Reject cleaning, to achieve optimal utilization of the resources in the food waste the BioSep has a reject cleaning stage, during which the reject is tossed around in the machine while clean water or process liquid is added. This secures that a minimum amount of digestible material clings to the plastics and packaging material.

Reject drying, to further ensure minimal losses of digestible material and to prevent large pockets of liquid on the reject, the reject is dried before being discharged from the unit.

Reject discharge, when the reject is cleaned and dried, the BioSep automatically discharge the reject into a spiral conveyor for onwards transportation to a container.

5. BioSep® Stage 2
BioSep Stage 2 has the same mode of operation as BioSep Stage 1. The difference is that BioSep Stage 2 has a finer masking of the sieve, which ensures separation also of small pieces of plastics and packaging material that wasn’t separated in BioSep Stage 1.

The configuration of having a BioSep Stage 1 followed by a BioSep Stage 2 ensures both capacity and performance in the process. The quality in the process means that the BioPrePlant-System utilizes the resource in food waste optimally.
High quality biosubstrate

The end product
The end product from a BioPrePlant-System is a biosubstrate that is suitable for anaerobic digestion.

In the development of the BioSep no resources were spared, to ensure optimal separation, which means that we can guarantee that the biosubstrate will be of the highest quality.

The particle sizes of the digestible material, and the amount and sizes of the impurities remaining within the biosubstrate, is well within the technical and environmental requirements for utilizing the biosubstrate in biogas production and then the digestate as a bio fertilizer.

History
BioSep is a Norwegian invention that was developed specifically for pre-treatment of food waste. The inventors family has been involved in pre-treatment of food waste for three generations. The specifications while developing the BioSep included the following, amongst others;

- Minimal amount of water in the biosubstrate
- Minimal loss of digestible material in the rejects
- No need for human interventions and de-packaging
- Perform on all kinds of food waste
- Performs with all kinds of household collection systems

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