

BioChop® Hygienisation

Patent pending



Landia BioChop hygienisation unit, vol. 2.5 m³

EC-regulation No. 1774/2002 of 3 October 2002 on health rules concerning animal by-products not intended for human consumption, also known as the by-product regulation, now opens the way for new possibilities for companies producing varying quantities of animal by-products.

The by-product-regulation allows the use of category 3 animal by-products at biogas plants, provided that these products have been pasteurised or hygienised at 70° C for at least one hour and that the size of the solid parts does not exceed 12 mm.

It is an accepted fact that in order to obtain a cost-effective operation of biogas plants a catalyzer in the form of organic waste or by-products must help the process. Typically, these by-products originate from the food industry, such as abattoirs or fish and poultry processing companies.

Landia has been abreast of this development and now offers you the BioChop hygienisation unit. The first unit is already in operation at the Rybjerg Biogas plant.

The Rybjerg project

At the municipal wastewater treatment plant a flotation plant processes all wastewater from the nearby fish industry. The flotation plant separates the wastewater in two; a liquid part which is pumped to the plant for treatment and a sludge part disposed of to the biogas plant. The flotation sludge is comprised by the new by-product regulation and must thus be hygienised at 70°C for an hour before it is led to the digester of the biogas plant.

The solution

A Landia BioChop hygienisation unit having a volume of 2.5 m³ is installed at the Rybjerg Biogas plant. The capacity depends on the present heat quantity; the average capacity lies between 20 and 25 tonnes a day at continuous operation.

The BioChop hygienisation unit is characterised by its simple design with operationally reliable high-quality components. The tank, the pipe, the heat shield and the valves are made of stainless steel. The unique design of the unit makes it possible to chop solid parts, to mix and to empty the tank after the hygienisation process by using only one pump, i.e. a Landia BioChop chopper pump - see photo.

Control system

The hygienisation unit includes a PLC-control – developed by Landia - which regulates all phases of the hygienisation process. We have integrated a data logger as part of the control. This is a data collector whose task it is to register the hygienisation time and the temperature. Since the plant has been approved by the authorities, naturally, it must be verified that the requirements of 70°C for 1 hour are met.



Landia chopper pump



PLC-controls, regulates, monitors and registers

Quality in every detail

This is how it works

At the Rybjerg Biogas plant the hygienisation unit has become an integral part of the biogas plant.

The flotation sludge from the treatment plant is kept in the reception tank prior to the hygienisation process. The bottom of the reception tank is equipped with heating coils – even in the coldest winter the sludge temperature will not go below 10-15° C.

The flotation sludge is pumped from the reception tank to the hygienisation unit. A return pipe connects the two tanks. In case of excess pumping or foaming from the heated sludge a contamination of the surrounding area will thus be avoided.

After the heating and hygienisation process the BioChop pump will pump the substrate directly from the hygienisation unit to the digester.

Numerous possibilities

At the Rybjerg Biogas plant the hygienisation unit has been placed at the biogas plant itself. It is, however, possible to place the unit at the factories where the animal by-products are produced. In many situations the hygienisation unit will contribute to a simpler and improved hygienic handling of the by-product, since the substrate - apart from being heat-treated - is made pumpable in a closed system. This means that the substrate can be pumped to a storage tank or directly to a tank lorry, thus avoiding e.g. open containers.

Advantages

The hygienisation unit is characterised by its simple design. The material and the main components are high quality - the entire BioChop tank is made of stainless steel and thus provides maximum protection against corrosion.

You will find absolutely no moving parts inside the BioChop tank. Thus it will never be necessary to enter the tank to carry out maintenance. Actually, the maintenance costs will be at a minimum since the only component at the BioChop hygienisation unit which will require regular maintenance is the BioChop pump.

Among several others one of the positive side effects is the heat-treatment of the hygienised substrate. In actual fact the plant can function as a heat exchanger. Furthermore, the heated substrate is easily pumpable, and the chopping to a particle size less than 12 mm ensures the optimum use in the biogas plant reactor tank, thus resulting in an increased gas production.



There are many types of category 3 by-products!

For further information, please contact:

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Landia A/S
Industrivej 2
DK-6940 Lem St.
Tel.: +45 97 34 12 44
Fax: +45 97 34 16 98
e-mail: info@landia.dk
www.landia.dk