

# Veendam

## Biogas plant with two lines and air cleaning system

Established in 2007

*The plant which is one of the largest in Holland is situated in the northern part (Veendam) of the country and handles 231,000 tons of biomass yearly, including chicken litter and animal manure.*

The plant is originally a tank installation that has been rebuilt into a biogas plant. It is built on a small area, however, it is situated close to a canal and can therefore be supplied by barges.

### Biogas and energy production

Veendam has approx. 75 major suppliers of biomass and they each deliver about 3-5,000 tons of biomass annually. The suppliers bring 14,000 tons chicken litter and 205,000 tons manure respectively. In addition, various types of organic waste, including residues from food production, are being processed. The total amount of biomass is around 231,000 tons per year. Dependent on the amount and quality of the biomass the annual biogas production is approx. 13.2 mill. m<sup>3</sup>.

#### Technical Data

Gas production: 13.2 mill. m<sup>3</sup>/yr

Power production: 31.5 mill. kWh/yr

Biomass: 231,500 tons/yr

Digester capacity:

Primary digester: 13,960 mill.m<sup>3</sup>

Secondary digester: 9,960 mill. m<sup>3</sup>

Gas engine: 5,065 kWh

Boiler: 1,750 kWh



### Two lines and air cleaning system

The Veendam plant consists of two lines. One line runs on chicken litter and manure with an operating temperature of 50°C and the other line runs on grain, industrial waste, and manure at an operating temperature of 37°C.

One of the lines has an air cleaning system installed, which is one of Xergi's most advanced systems. It runs continuously and cleans 40,000 m<sup>3</sup> air per hour.

### Plant with pasteurization

The plant is capable of pasteurising part of the biomass and has a separate line installed for this in the pre-treatment system, which makes it possible to receive category 3 animal by-products. The added biomass is pasteurised for one hour at 70°C. In this way a complete pasteurisation of the biomass is obtained which results in a

strong reduction of the bacteria content in the biomass.

### Future plans

The biogas plant is prepared for ORC technology (Organic Rankine Cycle) in the form of a modern oil-powered "steam turbine".

By using this technology a higher production ratio can be achieved from the generated power.

A future plan is to build a separation plant to make it possible to extract an even larger part of the nitrate content of the biomass.

