



Image source: RETERRA

TTV - Thöni High Solids Anaerobic Digestion Erfstadt (DE)

Customer



Plant data

Commissioning: 2021

Input: 28,000 t/a of biowaste

Digester: TTV1850 (concrete)



Image source: RETERRA

Plant and process

The site of the composting plant of the company RETERRA Service GmbH in Erftstadt was expanded to include a digestion stage for the energetic utilisation of a partial stream of biowaste delivered there.

In the existing reception hall, the processed material is transported by a fully automatic conveyor system consisting of conveyor belts to the intermediate storage tank. From there, the substrate is fed into the digester via a screw conveyor and a conveyor belt through an external mixer system in combination with a hydraulically operated piston pump and a substrate heat exchanger.

The fermentation process takes place in a TTV Thöni plug-plow digester. The digestion process is based on an anaerobic, thermophilic and completely biological process, the so-called continuous high solids anaerobic digestion. In this process, the digested material is passed through the digester at a temperature of 55°C (thermophilic) by means of a "plug" – supported by a slowly rotating agitator. The special design of the agitator reliably prevents the formation of sinking and floating layers and promotes a high and uniform gas yield. Hygienization is achieved through the controlled retention time of the material in the digester.

At the end, the digestate is transported by closed pipelines and a conveyor belt to the tunnel composting plant, where it is processed into high-quality compost.

The produced biogas goes to the biogas storage tank and from there on to the biogas purification plant. The purified gas is then fed into two combined heat and power plants, where it is converted into electrical and thermal energy. Part of the thermal energy is used to operate the AD plant as well as to deliver the required process heat of the digester. The generated electrical energy is fed into the local power grid. The CHP units are operated in so-called flexibility mode, i.e. electricity production is flexible, hence demand-oriented, and thus contributes to stable grid utilisation.

Performance data

Input:

28,000 t/a of biowaste

Output:

Hygienised digestate for further processing in the existing composting plant

Raw biogas:

3,365,000 Nm³/a

Power yield:

7,800,000 kWh/a