



TNV STUDFARM - RUFFORD

UK

TNV THÖNI WET DIGESTION SEMI DRY

Plant data

Customer:
future biogas



Plant data

Commissioning:
2016

Input:
maize silage, straw, whole crop silage

Digester:
1 primary digester, 1 secondary digester



PLANT AND PROCESS

The solid input material is stored in silage clamps. In order to prevent any premature degradation, the material is compressed and covered. This minimises energy loss and odour emissions.

Liquid input materials (such as silage liquor) are stored in a feed pit and are fed to the digesters by means of a pump with an inline wet macerator. The feed pit also allows to receive solid input material that is mixed up with liquid feedstock to a pumpable substrate. The straw is fed by a wheel loader into a clamp and from there supplied by an automatic crane system to the shredder. The chopped straw is then delivered via a screw conveyor to the digester.

The other input material is metered into the main digesters using special Thöni feed hopper units consisting of a container module and an automated conveying system. The loading of the container module has to be done by a wheel loader. The digesters are designed as round vessels from reinforced concrete containers with a gas storage unit on top. Sufficient insulation and integrated heating systems ensure optimal conditions for the generation of biogas from

the input. The horizontal agitators consisting of paddles ensure that the substrate is stirred efficiently, even at a significant amount of dry substance, and largely prevent the formation of sinking and floating layers. The agitators also help the biogas to escape from the substrate. The generated biogas is desulphurised directly in the digesters by adding oxygen.

After the digestion process, a separator unit separates the digestate into a solid and liquid phase. A part of the liquid substrate goes to the drying unit, which is powered by the waste heat of the CHP plant, and is then stored in a lagoon. The remaining liquid part is recirculated into the process. The solid substrates are used, after a short conditioning period, as a high-quality, organic fertiliser.

A part of the biogas goes to the CHP plant on site for generating the required thermal process energy. The other part of the biogas is fed into a CHP plant of a wellness park close to the waste treatment plant where the produced heat is supplied to the individual spa facilities.