



## Biogas plant **Staßfurt (DE)**

### Customer

Biomethananlage Staßfurt  
Betriebs GmbH & Co KG

### Plant data

Commissioning: 2015

Input: Maize silage  
Whole crop silage  
Grass silage  
Sugar beet  
Sudan grass  
Manure  
Sorghum



## Plant design 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.

The sugar beets are cleaned and shredded in a beet beater system. From there they are transferred via screw conveyors to the secondary digester. 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 solid input material is metered into the main digester using two special Thöni feed hopper units consisting of a container module and an automated conveying system. The loading of the container modules has to be done by a wheel loader.

The digesters are designed as round vessels from reinforced concrete 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 and then refined in a special upgrading plant to biomethane and finally fed into the public gas network.

A small part of the biogas is used for generating the required thermal process energy in a cogeneration plant.

After the digestion process, a separator unit separates the digestate into a solid and liquid phase. The liquid substrate is almost odourless and pumped into final storage tanks and is used as a liquid fertiliser. The remaining solids are also used, after a short conditioning period, as a high-quality, organic fertiliser.

### Plant data

**Biomethane processing:**  
700 Nm<sup>3</sup>

**Input:** Maize silage  
Whole crop silage  
Grass silage  
Sugar beet  
Sudan grass  
Manure  
Sorghum

**Cogeneration plant (CHP):**  
2G avus 500 plus - 550 kW el.

**Feed pit (solids, liquids):**  
1 x 200m<sup>3</sup>

**Feed hoppers Thöni FEM 150:**  
2 x 150 m<sup>3</sup>

**Digesters:** Reinforced concrete  
2 x 4.000 m<sup>3</sup> (main digester)  
1 x 7.630 m<sup>3</sup> (secondary digester)

**Paddle mixers:**  
3 x main digester 1  
3 x main digester 2  
3 x secondary digester

**Final storage tanks (Reinforced concrete):**  
3 x 7.220 m<sup>3</sup>

**Gas cleaning:**  
Internal with oxygen processing

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