



## High solids anaerobic digestion **Santa Giustina, Belluno (IT)**

### Customer

Dolomiti Ambiente S.p.A.  
Belluno (I)

### Plant data

Commissioned: 2011  
Input: source segregated biowaste  
Capacity: 22,000 t/a  
Power el.: 637 kW



### Plant and Process

The input material mainly consists of biowaste collected from the households of the Belluno region and green waste.

After reception, the biowaste is intermediately stored in a reception bunker and then transported to the pre-treatment unit by means of a wheel loader. Then the material is shredded and separated in a screen that removes residuals such as plastics, stones, metal parts etc.

Afterwards the separated material is stocked in an intermediate storage bunker before being continuously fed into a horizontal digester via a fully automated conveying system.

In the entirely closed digester microorganisms transform the energy of the organic material into biogas. The anaerobic digestion process takes place at a temperature of approximately 55°C. This is the temperature the microorganisms do require for the decomposition of the biowaste. Within approximately two weeks (residence time) the material continuously moves through the digester in the so-called plug flow process. A slow moving paddle-shaft guarantees an optimum biogas release and homogenisation of the material.

### Utilisation of Biogas

The biogas produced during the anaerobic digestion process is converted into thermal and electric power in a cogeneration power plant. A part of the heat is used for process heating and for the heating of the adjacent office buildings. The excess heat is fed into the integrated district heating network. The electric power goes to the public power grid.

### Separation and Utilisation of the Digestate

At the end of the fermentation process the digestate is removed from the digester and is pumped into a dewatering hall via a piping system. There the separation of the material into solids and liquids is effected by means of a Thöni screw press. The solid part then undergoes a further aerobic composting process in the special Thöni composting units.

The liquid part is partially recirculated into the process. The main part of the process water is used as agricultural fertilizer, the remaining part, after a suitable treatment, is then processed in a waste water treatment plant.

### Odour Management

The biofilter unit which is integrated in the odour management unit minimises odour nuisances. This effect is increased by the suitable enclosure of all treatment areas which also serves as noise protection.

### Facility objectives

The source segregated biowaste is supposed to be used for the production of biogas and the generation of renewable energy.

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