



BIOSOLIDS



BIOWASTE



BIORENEWABLES

PLANT
SHEETS

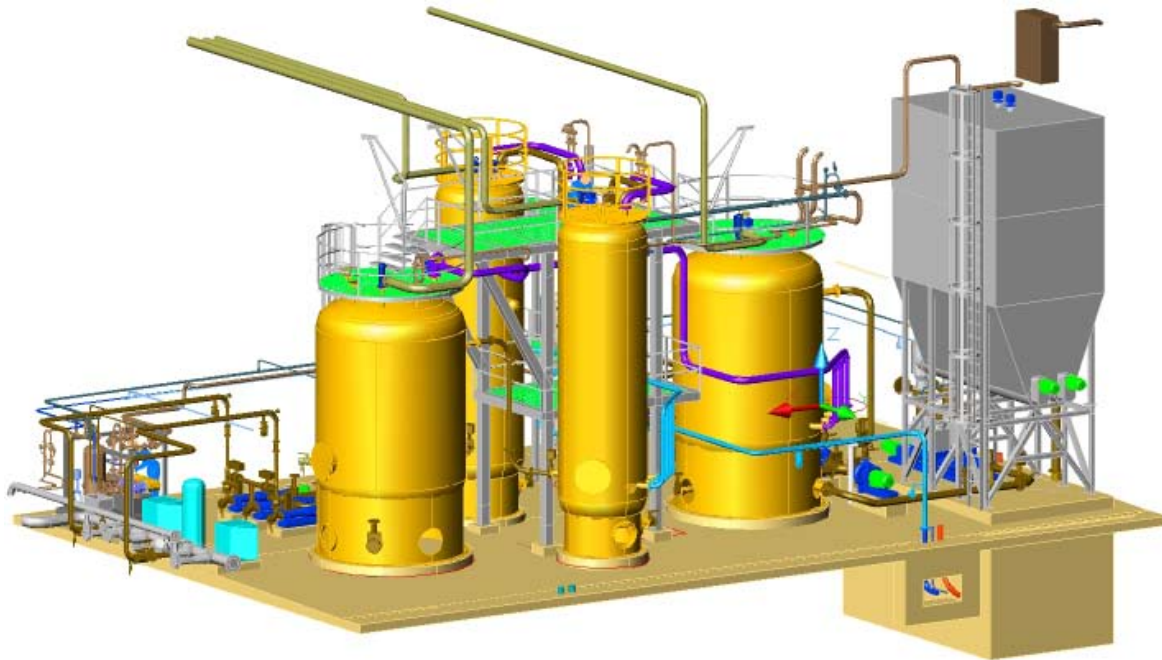


KAPUSCISKA

Bydgoszcz, Poland

Plant capacity and performance:

- 7,650 tonnes DS/year
- 2 x 3,800 m³ digesters
- 2 x 529 kWe cogeneration
- 10 % DS feed to digestion
- 2 reactor Cambi THP
- 7,500 m³/day biogas
- >57% VS destruction
- Final product: 31-33% D
- Pasteurized and odourfree biosolids cake
- Half the cake volume compared to before



Kapusciska, Poland

The first Cambi Thermal Hydrolysis plant (THP) in Poland is located at the Kapusciska wastewater treatment plant in Bydgoszcz. The plant was having problems with digestion as the mixed sludge has a high content of long sludge age secondary sludge that is both difficult to digest and dewater.

Cambi's supply included pre-dewatering, silo, cogeneration plant for electricity and steam, buildings and all necessary civil works.

The Cambi THP process treats up to 7,650 tons of dry solids per year. The sludge is initially dewatered to 16% dry solids, then pumped sequentially into the pulper/preheater tank, where it is heated with steam recycled from the process. It is then pumped into the high-pressure reactors, where hydrolysis at high temperature (165°C) and pressure (6 bar) occurs.

The benefits of the Cambi process are:

- Cake production decreased to less than half, from 19,600 tons in 2004 to 9,500 tons in 2006• 57% VS destruction
- Positive energy balance, i.e. only 20% of the biogas is used directly to operate the system. The remaining 80% is used to generate green electricity and process steam
- Grade A/pathogen-free biosolids with no odour and no re-activation/re-growth
- Very energy efficient heat treatment due to recycling of process steam and high DS treatment (16-17% DS)
- Very high digester loading rate (10% DS), rapid conversion with no foaming, and 2-3 times increased digester yield• >48% dry solids reduction
- 31-33% cake solids in the final product
- 1100 kW electricity (installed)

Retention time in the reactors is 20-30 minutes, after which the pressure is reduced to 2-3 bar, and the sludge flashed by pressure differential into the "flash tank". The surplus steam is recycled to the pulper. The sludge is then pumped through a heat exchanger, into the digesters, at 10% dry solids.

The Cambi process causes hydrolysis of the microbial cells and the sludge particles through a combination of temperature and sudden pressure reduction. Process gases are trapped, and injected into the anaerobic digester feed, eliminating any odours. The Cambi process has complete duty and standby on all rotating equipment.

Cambi AS commissioned the plant in August 2005 and transferred operations to plant managers in March 2006.