



BIOSOLIDS



BIOWASTE



BIOREFINERIES

PLANT
SHEETS



OXLEY CREEK

Brisbane, Australia

Plant capacity and performance:

- 12,900 metric tonnes DS/year
- 2 x 2600 m³ digesters
- 13,500 m³/day biogas
- Final product: 30% DS
- 1,000 kW electricity
- 43 % reduction of DS
- >50% VS destruction
- 70% decrease in truck movements



Oxley Creek, Brisbane water

The first Cambi Thermal Hydrolysis plant in Australia is installed at Oxley Creek Sewage Treatment Plant (STP), Brisbane, as part of the Brisbane Water Environmental Alliance (BWEA)'s sludge treatment center.

The Cambi process treats up to 95,000 tonnes of dewatered waste activated sludge (WAS) from the Oxley Creek STP and trucked in from outlying STPs.

The sludge is initially dewatered to 13.5% 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 (155°C) and pressure (4.5 bar) occurs. 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 "flashtank". The surplus steam is recycled to the preheater tank.

The sludge is then pumped through a heat exchanger, into the digesters, at 8% 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 a stand-by on all rotating equipment. Construction commenced in December 2005, and the plant was mechanically completed in March 2006.

BWEA tested a number of disintegration and hydrolysis technologies. Cambi was the only one that could guarantee significant biogas production and good dewatering..

The benefits of the Cambi process are:

- Positive energy balance, i.e. only 25% of the biogas is used directly to operate the system. The remaining 75% is used to generate green electricity and process steam
- 5 tonnes of WAS at ~13.5% dry solids reduced to 1 tonne of digested biosolids at ~30% dry solids
- >50% VS destruction
- 43% dry solids reduction in the digesters
- 30% dry solids in the final cake product
- 1000 kW electricity (installed)
- Increased loading rate of digester at ~ 8% DS
- Increased digester capacity for imported sludge
- Grade A biosolids