

### Biogas plant with Cogeneration Unit



### Genossenschaftsbrennerei Altheim e.G.

The Altheim Distillery Company, located in the county of Landshut, Bavaria, is a typical Bavarian Distillery, operated basically on potatoes as input by a co-operative of farmers, who sells the produced alcohol to the German federal monopoly Agency for use as industrial alcohol.

The fermentation tank is manufactured from reinforced concrete, ca. 2/3 of fermentor volume is dug into the soil, the remainder is visible. The outside walls are well insulated including the base plate and the covering slab. The octagonal gas intake and supply building on top of the fermentation tank includes substrate feeding plant, gas safety installations, control and sampling equipment and the distribution for the fermentor heating system.

The complete use of their own distiller's wash, other production leftovers and agro waste is one of the most important requirement of the German / European "Kreislaufwirtschaftsgesetz" which requires waste to be processed in the area where it is generated.



On the one hand the energy produced is CO<sub>2</sub> neutral, produced from locally grown regenerative raw material, on the other hand high quality fertilizer is produced.

By the operation of a Biogas plant in this Distillery their energy requirement from outside is considerably reduced, regarding electrical energy they are 100% independent, surplus electricity is sold to the grid of the utility. The produced heat is used as process heat (50%) and for heating the adjacent industrial buildings and houses (50%).

The Altheim Biogas Plant is a very good demonstration project, that 100% of input energy can be completely commercially used if good plant design meets owner's interest.

### Technical data

Intended substratum input:

Distiller's wash (potato or grain)	3,800 m <sup>3</sup> /a
Pulp from starch production	1,200 t/a
Vegetable peelings and cut grass	200 t/a
Pig manure (sometimes only)	< 1,000 m <sup>3</sup> /a

Fermentor volume: 1,200 m<sup>3</sup>

Biogas yields:

from Pulp:	0.65 m <sup>3</sup> /kg ODM <sub>feed</sub>
from Manure:	0.45 m <sup>3</sup> /kg ODM <sub>feed</sub>
from grass:	0.55 m <sup>3</sup> /kg ODM <sub>feed</sub>
from distiller's wash:	0.60 m <sup>3</sup> /kg ODM <sub>feed</sub>

Biogas yield, average: > 1,000 m<sup>3</sup>/d  
> 300,000 m<sup>3</sup>/a

Hydrogen sulfide (H<sub>2</sub>S): < 500 ppm

CHP plant installed (IVECO): 2 x 85 kW<sub>el</sub>

From Biogas producible

Electric energy: ca. 600,000 kWh<sub>el</sub>/a

From Biogas producible

Thermal energy ca. 1,000,000 kWh<sub>th</sub>/a

By energy production out of Bio-

gas saved CO<sub>2</sub> emissions >400 tCO<sub>2</sub>/

### INNOVAS Innovative Energie- und Umwelttechnik

#### Anselm Gleixner und Stefan Reitberger GbR

Margot-Kalinke-Strasse 9, D-80939 Muenchen (Munich), Germany

Phone: +49 - 89 - 16 78 39 73

Fax: +49 - 89 - 16 78 39 75

E-mail: info@innovas.com

URL: <http://www.innovas.com>



- Biogas Applications
- Digestion of Organic Waste
- Biomass Combustion
- Biodiesel Plants
- Industrial Consulting