



Biogas Vienna

From food waste to biogas



Vienna has one of Europe's most cutting-edge biogas plants. More than 22,000 tons of organic waste (i.e. food waste) are turned into energy for more than 1,000 Viennese households. About half of the organic waste comes from the city's household compost bins, the rest is from restaurants, hotels or from food retailing (expired food items).

BIOMETHANE PRODUCTION FROM GARBAGE

Due to its high water content, food waste is not always ideal for composting. But it is perfect for so-called anaerobic treatment (fermentation and thus biogas production).

Conventional bin lorries and special tank lorries transport solid and liquid biogenous waste to the plant. Solid waste is examined and tipped into an underground hopper with a size of 160 cubic metres; liquid waste goes directly into a storage reservoir. In several steps, the waste is separated from potential foreign substances, chopped up, mixed, and then water is added.

The biogas plant operates based on a "single-stage, mesophilic wet process", at a fermentation reactor temperature of approximately 37 degrees. During the treatment process, microorganisms produce a mixed gas consisting of 40 to 70 percent methane. This makes it suitable for use as biogas.

The extracted exhaust air with a total volume of approx. 25,000 cubic metres per hour is fed into a waste air purification plant.

In the biogas treatment plant, a special procedure turns biogas into biomethane. The input material is desulphurised biogas produced in the treatment plant. To be able to feed it into the gas grid as biomethane, the carbon monoxide contained in the biogas must be separated from the remaining hydrogen sulphide as well as from terpenes and siloxanes. A modern membrane separation method enables this separation. It guarantees that the biogas - with a methane content of 65 percent - is turned into almost pure biomethane, with a methane content of 99 percent.

After quality control, the biomethane is compressed to up to 70 bar and then fed into the Vienna gas grid. The plant produces more than one million cubic metres of CO₂-neutral biomethane every year. It supplies 1,000 Viennese households with environmentally friendly biogas. This saves 3,000 tonnes of CO₂ every year, thus actively contributing to climate protection.

After fermentation, around 2,500 tonnes of (drained) residue material remain per year, out of the initial 22,000 tonnes. This residue is thermally recycled.

FACTS & FIGURES

BIOGAS VIENNA - SIMMERING

- Launch: August 2007
- Input 22,000 t of food waste per year
- Around 1.5 million m³ gas per year
- Around 8,000 Mwh of energy per year
- Biogas for 1,000 households per year
- 3,000 t less CO₂ per year



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