

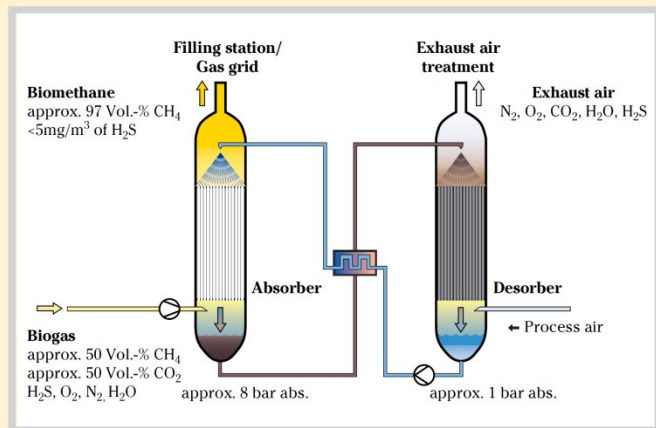


Above:
The BiogasUpgrader in Jameln has been refining 100m³/h of raw biogas to biomethane for the local Raiffeisen petrol station since June 2006.

Below:
The BiogasUpgrader in Ronnenberg (near Hanover) has been processing 650m³/h of raw biogas for supply to the local gas grid since March 2008.

HAASE BiogasUpgrader

Refines raw biogas to biomethane for grid supply and motor vehicle operation



Efficient process with high availability

The HAASE BiogasUpgrader operates acc. to the principle of physical scrubbing with an organic fluid.

In this process the raw biogas is compressed to 7bar overpressure and then cooled down. Subsequently it passes through an absorption column, where carbon dioxide, hydrogen sulphide and water are absorbed by means of an organic fluid.

The biomethane (natural gas quality H acc. to DVGW G260) passes off at the top of the column. Depending on the grid, an additional conditioning by adjection of LPG or air, or pressure adaptation might be necessary.

The organic fluid is regenerated inside a second column (desorber) and returned to the absorber. The exhaust air of the desorber is cleaned by an activated carbon filter.

Performance features of the BiogasUpgrader

- Adjustable methane content acc. to DVGW G260
- Methane slip <1%
- Zero-methane-emission possible by retrofitting a HAASE VocsiBox®
- Hydrogen sulphide <5mg/m³
- Organic fluid is regenerated – no wastewater
- Optimal energy balance by innovative heat concept

Advantages of the BiogasUpgrader

- Proven process with little methane loss and high availability
- Low power consumption
- Exhaust heat utilisation possible for basic heat load of the biogas plant
- Successful reference plants.

HAASE BiogasUpgrader in operation since June 2006

The first biomethane petrol station in Germany has been successfully in operation with a HAASE BiogasUpgrader since June 2006. The methane content is refined from about 52% by volume of raw biogas to more than 96% by volume.

With more than 17,000 operating hours within 2 years this process has proven to be reliable and efficient.

Grid supply in Ronnenberg since March 2008

In Ronnenberg 2.4 million m³ of biomethane are supplied directly to the natural gas grid in Hanover. The BiogasUpgrader processes 650m³/h of raw biogas.

Grid supply starting 2009: Rathenow BiogasUpgrader

In Rathenow a new BiogasUpgrader will refine 1,130m³/h of raw biogas to 4.7 million m³ of biomethane per year, which will be supplied to the NBB grid first quarter of 2009.



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DIN EN ISO 9001 : 2000