



sysadvance[®]

is getting green with **METHAGEN**

Biogas Upgrading

Biogas upgrading leads to pure biomethane, a clean fuel that can replace natural gas in all its common applications. When compared with traditional CHP, biogas upgrading allows access to a more efficient and high added-value use of this biofuel.

SYSADVANCE is a leading player in gas separation and purification technology. METHAGEN units are high efficiency systems based on VPSA technology producing high purity CH₄ ensuring simultaneously recovery rates close to 99%.

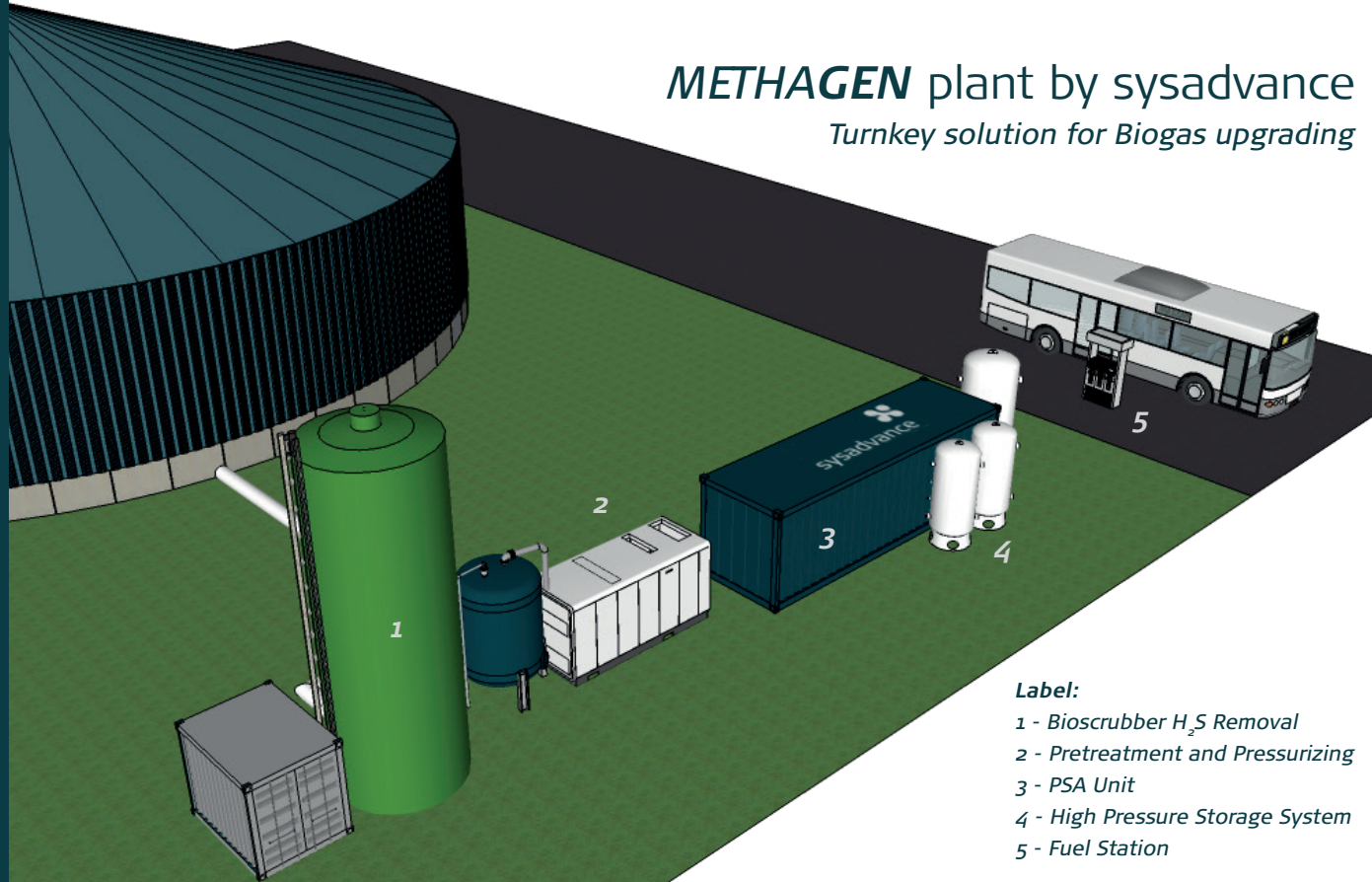
METHAGEN advantages

- ✖ Low operation Costs
- ✖ High Purity CH₄: up to 99%
- ✖ High Recovery
- ✖ High Productivity
- ✖ ECO solution for H₂S removal
- ✖ Efficient N₂ removal
- ✖ ATEX certification
- ✖ GSM Remote Control and Monitoring
- ✖ Container mounted



METHAGEN plant by sysadvance

Turnkey solution for Biogas upgrading

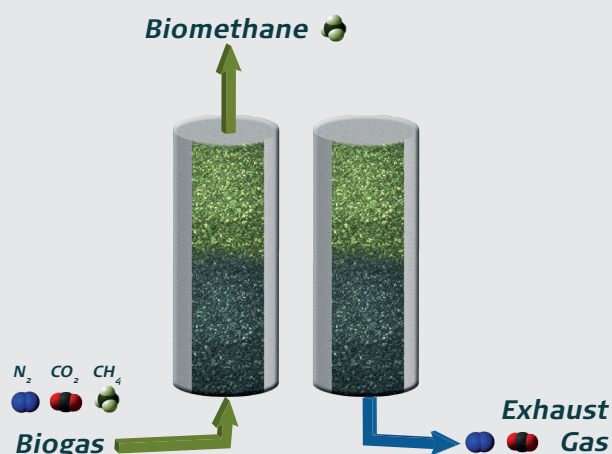


How VPSA Technology works?

After being previously dried and desulphurized, compressed biogas is fed to the **METHAGEN** Upgrading Unit that makes use of Vacuum Pressure Swing Adsorption (VPSA) technology to remove CO₂, N₂, O₂ and residual H₂O from the gas stream.

The **METHAGEN** system contains a set of columns packed with selective adsorbents. Each adsorption column undergoes a cyclic sequence of high and low pressure steps, to produce a continuous flow of high-purity CH₄. The adsorbent regeneration step is assisted by a vacuum system to enhance the process efficiency. The residual methane desorbed during the regeneration step is recycled back to the biogas inlet reservoir, resulting in a methane recovery rate close to 99%.

The **METHAGEN** operation is fully automated and controlled by a PLC. The biomethane composition is continuously monitored by a multi-gas analysis system.



Main Technical Specifications

SYSADVANCE **METHAGEN** units are designed and manufactured to meet the most demanding international quality, safety and performance requirements.

- ✖ **Raw Biogas Flowrates:** up to 3000 m³/h
- ✖ **Biomethane Purity:** up to 99% CH₄
- ✖ **CH₄ Recovery Rate:** up to 98%
- ✖ **Running Pressure:** 5 to 12 barg (up to 260 barg with high pressure system)
- ✖ **Power Consumption:**
 - < 0.28 kWh/m³ raw Biogas @ 400 m³/h
 - < 0.18 kWh/m³ raw Biogas @ 2000 m³/h
- ✖ **Monitoring:** online gas analyzers for CH₄, CO₂, O₂, and H₂S
- ✖ **Safety:** ATEX; CH₄ and H₂S detectors; low emissions; remote monitoring via GSM interface
- ✖ **Emissions:** catalytic oxidation system (optional) to reduce methane emissions < 0.2%
- ✖ **Options:** CO₂ recovery and purification solution; odorization system; production of liquid biomethane fuel

Several models are available under request.

Sysadvance provides the full turn-key solution for biogas upgrading or the single VPSA unit. For more information please contact us at info@sysadvance.com or go to sysadvance.com