CH_4 | O_2

BIOGAS UPGRADING | **H_2S REDUCTION**

ENERGY

sysadvance®



EN



- Founded in 2002 as a university spin-off
- Specialists in PSA (Pressure Swing Adsorption) technology for gas separation
- Rapidly growing global company
- Headquartered in Porto, Portugal

QUALIFICATIONS

- **GLOBAL LEADER** in PSA technology
- **4000+** PSA systems
- **50+** countries
- **1st** RNG system to meet Rule 30 in CA, USA
- **1st** RNG system in Portugal
- **1st** Non-cryogenic RNG system in France
- **1st** Closed-loop CO_2 system globally





BIOGAS UPGRADING

METHAGEN AD
Anaerobic Digestion

- Low power consumption (0,22 kWh/Nm³ | 0.384 kW/scfm of biogas)
- High RNG quality (up to 99% CH_4)
- High methane recovery (often exceeds 99.5%)
- Reduces N_2 (in addition to CO_2, O_2 & H_2O)
- Requires no water or chemicals
- Low long term consumable costs
- Reliable performance – avoid shut in
- Reliable operation – minimal downtime
- Modular and standardized design
- Easy to install
- Small footprint



GARANTEED:
- PERFORMANCE
- AVAILABILITY

METHAGEN LF
Landfill Gas Upgrading

- Low power consumption (0,30 kWh/Nm³ | 0.482 kW/scfm of LFG)
- High N_2 reduction capacity (up to ~20%)
- Rapid response to changing LFG flow & quality
- Requires no water or chemicals
- Low long term consumable costs
- Reliable performance – avoid shut in
- Reliable operation – minimal downtime



GARANTEED:
- PERFORMANCE
- AVAILABILITY

H2S REDUCTION

BiOXYGEN
O2 Injection

- High purity O_2 (up to 93%)
- Low OpEx (from 0,49 kWh/Nm³ | 0.80 kW/scfm at 90% O_2)
- O_2 without gas contracts or cylinders
- VSA or PSA Technology
- Fully automated operation
- Reliable operation – minimal downtime
- Easy to install
- Small footprint



GARANTEED:
- PERFORMANCE
- UPTIME

REFERENCES

METHAGEN AD

- Feedstock: Municipal organic waste
- Offtake: Renewable CNG truck fueling @ 4000 psig
- Location: Mirandela, Portugal
- Commissioned: 2016
- Capacity: 165 Nm^3/h | 100 scfm
- Awards: 1st RNG system in Portugal
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm^3 | 0.354 kW/scfm of biogas



METHAGEN AD (2-Stage)

- Feedstock: Municipal organic waste
- Offtake: Pipeline quality RNG (SoCalGas)
- Location: Perris, CA, USA
- Commissioned: 2017
- Capacity: 1000 Nm^3/h | 600 scfm
- Awards: 1st system to meet Rule 30 specification in CA
- Performance: < 2000 ppm of O2, High BTU (CH_4 >98,2%)
- Recovery: up to 98%
- OpEx: < 0,03 kWh/Nm^3 | < 0.048 kW/scfm



METHAGEN LF (2-Stage)

- Feedstock: Landfill Gas (with ≤20% Air)
- Offtake: Pipeline quality RNG
- Location: Paris, France
- Commissioned: 2018
- Capacity: 500 Nm^3/h | 300 scfm
- Awards: 1st (non-cryogenic) pipeline RNG system in France. Patented technology with highest N_2 reduction
- Performance: > 96.7% CH_4
- Recovery: up to 98%
- OpEx: 0,32 kWh/Nm^3 | 0.514 kW/scfm of Landfill Gas



METHAGEN AD (2-Stage) + CO2 Recovery

- Feedstock: Wastewater sludge
- Offtake: Pipeline quality RNG
- Location: Portland, Oregon, USA
- Installed: 2019
- Capacity: 1500 Nm^3/h | 900 scfm
- Awards: 100% CH_4 recovery (w/ CO_2 capture & purification)
- Performance: > 98% CH_4, < 0.2% O_2
- Recovery: 99.96%
- OpEx: < 0,03 kWh/Nm^3 | < 0.048 kW/scfm



METHAGEN AD

- Feedstock: Agro Waste
- Offtake: Pipeline quality RNG
- Location: Prémery, France
- Installed: 2020
- Capacity: 250 Nm^3/h | 150 scfm
- Awards: 1st of six plants same client
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm^3 | 0.354 kW/scfm of biogas



METHAGEN LF (2-Stage)

- Feedstock: Landfill Gas (with ≤20% Air)
- Offtake: Renewable CNG + Pipeline quality RNG
- Location: Granada, Spain
- Commissioned: 2021
- Capacity: 500 Nm^3/h | 300 scfm
- Awards: 1st landfill project for CNG mobility in Spain. Patented technology with highest N_2 reduction
- Performance: > 96% CH_4
- Recovery: up to 98%
- OpEx: 0,30 kWh/Nm^3 | 0.482 kW/scfm of Landfill Gas



REFERENCES

METHAGEN AD

- Feedstock: Wastewater sludge
- Offtake: Renewable CNG
- Location: Boden, Sweden
- Commissioned: 2022
- Capacity: 500 Nm³/h | 300 scfm
- Awards: Indoor Installation (60 miles from Artic circle)
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm³ | 0.354 kW/scfm of biogas



METHAGEN AD

- Feedstock: Wastewater sludge
- Offtake: Renewable CNG truck fueling @4000psig
- Location: Lisbon, Portugal
- Commissioned: 2022
- Capacity: 500 Nm³/h | 300 scfm
- Awards: 1st Methanation Unit in Portugal
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm³ | 0.354 kW/scfm of biogas



METHAGEN AD

- Feedstock: Organic Waste
- Offtake: Pipeline quality RNG
- Location: Turkey
- Commissioned: 2023
- Capacity: 360 Nm³/h | 200 scfm
- Awards: Complex integration within a food & beverage corporation
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm³ | 0.354 kW/scfm of biogas



METHAGEN AD

- Feedstock: Chicken manure
- Offtake: Pipeline quality RNG @ 17 barg
- Location: Latvia
- Commissioned: 1st phase 2023, expansion 2024
- Capacity: 2000 Nm³/h + 1000 Nm³/h | 1200 scfm + 600 scfm
- Awards: Largest Biogas Upgrading sy
- OpEx: 0,22 kWh/Nm³ | 0.354 kW/scfm of biogas



METHAGEN AD

- Feedstock: Manure
- Offtake: Pipeline quality RNG
- Location: USA
- Commissioned: 2023
- Capacity: 500 Nm³/h | 300 scfm
- Performance: > 97% CH_4
- Recovery: > 99%
- OpEx: 0,22 kWh/Nm³ | 0.354 kW/scfm of biogas



METHAGEN AD

- Feedstock: Landfill Gas
- Offtake: CNG fot transport and commercialization
- Location: Minas Gerais, Brazil
- To be installed: end of 2025 / beginning of 2026
- Capacity: 3X 2500 Nm3/h | 3X 1500 scfm
- Recovery: Superior with high levels of N_2
- OpEx: Low electrical consunption delivering gas at 8 bar



PUBLICATIONS



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