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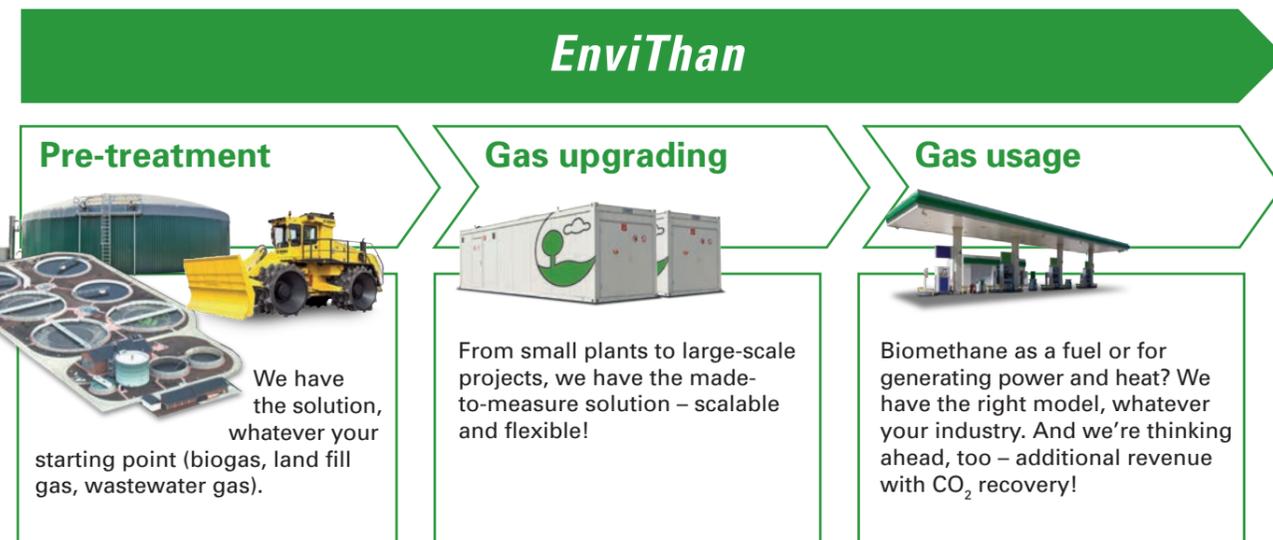
EnviThan – gas upgrading
technology made in Germany

The future of renewable energy sources is biomethane.

About EnviThan

The upgrading of biogas to biomethane opens up a promising market for the future. Biomethane is perfect for the decentralised supply of energy, offering a long-term replacement for fossil natural gas that drives the energy transition forward. What's more, biomethane has the exact same properties as natural gas, being flexible in its usage and easier to store than other energy sources. Plus, it's renewable.

To become natural gas-quality biomethane, EnviThan technology is used to purify and compress the crude gas from 50 to over 97 percent methane by volume. To do so, the EnviThan membrane technology makes use of the different sizes and permeation speeds of gas molecules: compared with other approaches to biogas upgrading, EnviThan technology consumes less energy, and requires no other process materials or chemicals.



Case studies

Drive Biogas – EnviThan makes inroads into fuel market

Location: Penglai City, Shandong province, China

In operation since: 2017

Input material: Poultry litter from the owner's approx. 6 million head of poultry

Features:

- > Integrated model, from crude gas upgrading to fuel production
- > Two EnviThan plants with a total biomethane output of 2,000 Nm³/h
- > The bio CNG is distributed as a clean passenger car fuel from the company's own filling station in the nearby city of Yantai.

The challenge with this project involved the fact that a large volume of substances was mixed in with the gas from poultry litter digestion. Separating out these substances safely and economically before they entered the upgrading process proved to be a complete success in this project. To do so, the crude gas produced is converted using an efficient, cost-effective gas cooler/scrubber plus downstream activated charcoal purification. In this way, the biogas is cooled to the desired temperature, purified and dewatered in just a single process. This ensures the environmentally-friendly use of biogas as a carbon-neutral fuel in passenger cars: efficiency Made in Germany!

Compact, modular design offers customers maximum flexibility

Location: Högholt, Denmark

In operation since: 2017

Input material: A mix of liquid manure, glycerine, water, solid manure, straw, silage and maize husks

Features:

- > Thermophilic anaerobic plant operation (52 °C)
- > Flexible input system with cross-feeding of solid/liquid batches as required
- > Large goods receipt unit for input materials
- > Intelligent heating model using efficient heat recovery with heat pumps and substrate water heat exchanger
- > 940 Nm³/h biomethane fed into gas grid with no further adjustment to calorific value

In terms of implementing expansion targets for renewables, our customer – owner of a family-owned pig fattening farm – this biogas and gas upgrading plant is setting the standards to follow. With its modular container-based format and the implemented biogas technology, the plant offers a made-to-measure solution for the customer while enabling the use of a wide variety of input materials. An innovative heating system featuring heat recovery also means that even the waste heat from the gas upgrading plant is reused. And the plant also sets standards in terms of data processing: a logging program collects all of the biogas and gas upgrading plant's data, which ensures full transparency for performance analyses.



About EnviTec Biogas

- + Europe's strongest partner for biogas and biomethane technology with more than 434 MW_{el} installed capacity worldwide
- + Experience of owning and operating 76 plants with an average efficiency of 97%
- + Strong synergistic effects within the EnviTec Biogas group
- + Made-to-measure solutions along the entire value chain
- + Worldwide service support for high plant availability

