

Small-scale biogas plants for small agribusinesses in Latin America

The self-sufficient stirred biogas plant HoMethan® has been successfully launched in Brazil, Colombia and the Caribbean.





History, present and future

ÖKOBIT has started as one of the first biogas plant manufacturers, planners and designer in Germany. Until now, we have realised more than 250 projects (which includes 18 BIOMETHANE PLANTS). ÖKOBIT is one of the most in-demand full-service suppliers in the industry.

Formation of ÖKOBIT GmbH and commissioning of the first biogas plant



Realisation of the 1st BIOMETHANE PLANT



Commissioning of the 130th biogas plant and 8th BIOMETHANE PLANT



International business expansion



Launching of Suprajel® new disintegration process



Hydrobox with BioH2Plus Technology for higher efficiency
Hydrobox

2000

...

2006

2007

...

2010

2011

...

2012

2013

2014

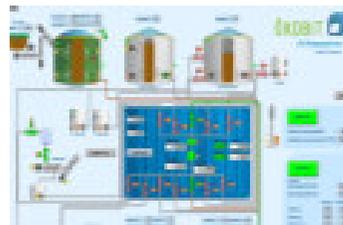
2017

2018

2020



Entry into gas upgrading (conditioning) technology



New development: ÖKOBIT PROCESS CONTROL SYSTEM



ÖKOCONSULT
Umwelttechnik GmbH

Foundation of greentec and ÖKOCONSULT

First HoMethan® prototype in Germany and Colombia



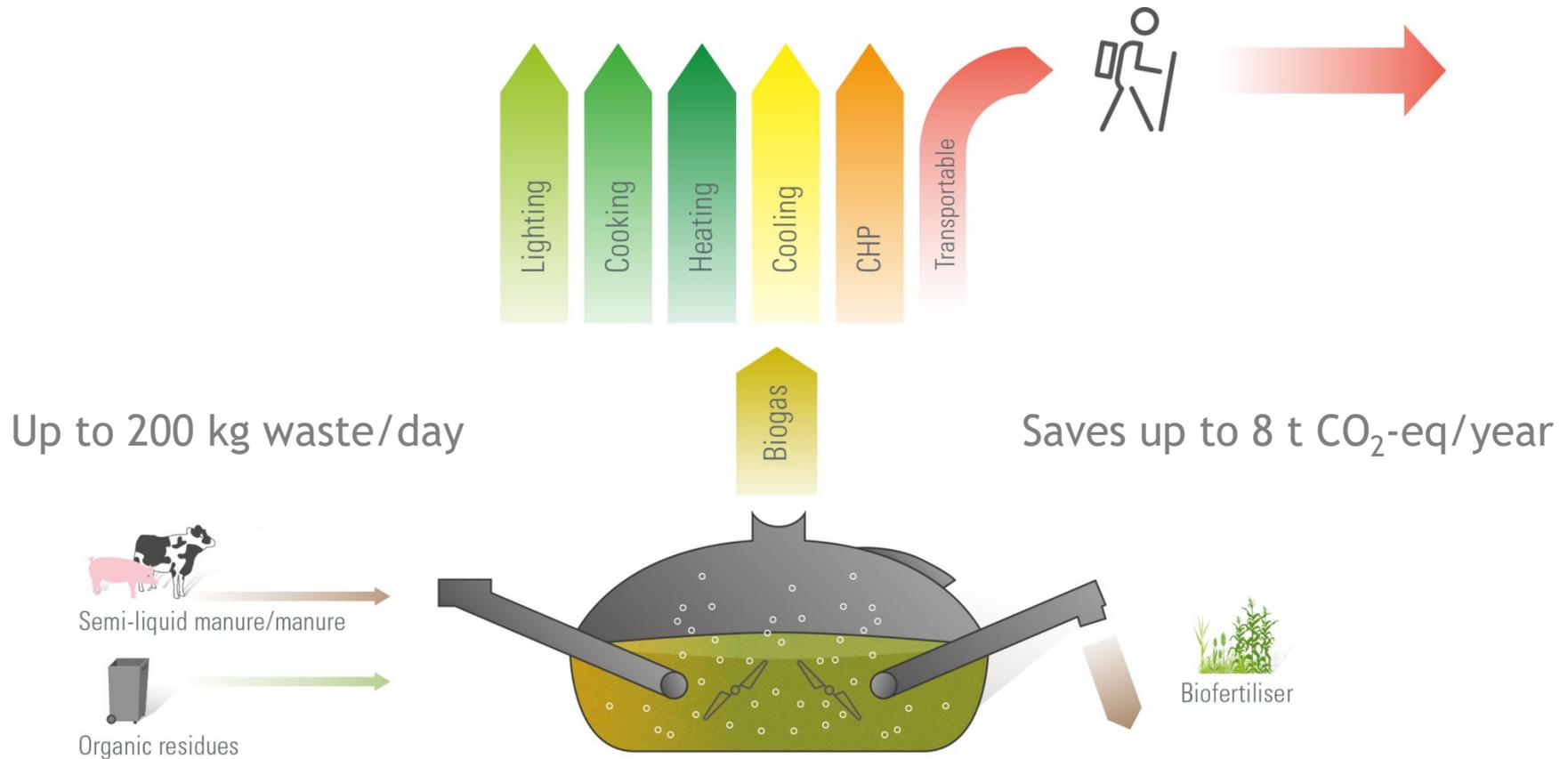
Foundation of Agrogaz france

Establishment on the French market (about 17 realised projects)



HoMethan Technology

5m³ biogas per day



Up to 200 kg waste/day

Saves up to 8 t CO₂-eq/year

1 HoMethan = **5 m³** biogas / day = **75 kg LPG** savings p. month or **90 l Diesel** savings p. month



HoMethan Technology

5m³ biogas per day





HoMethan Technology

The *new* biogas generation

HoMethan[®]

- the simplest way to produce biogas -

- ✓ **High-efficient** biogas production & **user-friendly operation and maintenance**
- ✓ Designed and **patented** in Germany
- ✓ Durable and approved membrane, UV and biogas components resistant
- ✓ Equipped with
 - ✓ **Manually-operated stirring system**
 - ✓ **Manhole** for maintenance purposes (no “**black box**” system)
- ✓ **Autarkic** - no need of electricity and water
- ✓ Easy to transport, install and uninstall (easy relocation)
- ✓ Lifespan of 20 years under proper use



Stirring benefits

- ✓ Uniform fermentation mix
- ✓ Uniform temperature distribution
- ✓ Prevent the formation of stratification, gradients, floating and sinking layers
- ✓ Optimum release of gas bubbles from the fermentation mass

Stirring design

- ✓ Manually-operated, no electricity requirements
- ✓ Gentle and biology-friendly
- ✓ For all type of organic substrates





✓ All-climates

- ✓ Warm to Cold regions: Temperature evenly distributed and no need of adding cold processing water
- ✓ Wet to Dry regions
 - ✓ No need of processing water up to 20% dry matter content
 - ✓ Water saving compared to spread technologies: 70 to 370 m³/a

All-organic waste producers

- ✓ Food-processing industry, agro-waste, animal-origin waste, etc.
- ✓ For low and high dry matter substrates, challenging substrates, etc.
- ✓ It boosts co-digestion
- ✓ Seasonal waste flows



Local economic benefits and job creation

Added value along the value chain

Primary sector: Agriculture

- ✓ Energy cost savings
- ✓ Fertilizer cost savings or improved crop yields
- ✓ Independence from fuel prices and supply shortages

Secondary sector: Manufacturing

- ✓ Additional business (welding)
- ✓ Further qualification of employees
- ✓ Manufacturing set-up & product development

Service sector: Education, sales, installation

- ✓ New field of business with healthy margin (incl. scaling up to larger biogas plants)
- ✓ Vocational training/ further qualification
- ✓ Long-term partnership and business support



Positive side-effects for end-users

Hidden benefits

- ✓ Constant supply of energy 24/7 and nutrients, directly on-site
- ✓ High-efficiency agribusinesses / beyond savings
 - ✓ Biogas increases productivity and creates earning opportunities
 - ✓ Digestate improves harvest with minimal wastage and maximum output
 - ✓ Control of heat temperature vs. firewood
- ✓ Greater convenience
- ✓ Better recognition of products thanks to resilience and sustainability
- ✓ Suitable technology in case of water scarcity



Experiences and lessons learned

- ✓ Waste management baseline: Fee discharge or storage in open ponds
- ✓ Workforce: In the Caribbean, the rollout has been stacked due to lack of workforce in spite of successful biogas farmer community
- ✓ Gas use: Very wide and flexible gas use options are key for success
- ✓ Digestate: Extreme high interest in digestate. Offtakers often not required.
- ✓ Profitability: Challenges in quantifying savings
 - ✓ High fluctuations of LPG prices due to competition
 - ✓ Lack of expenses track by farmers
 - ✓ Market value of digestate
 - ✓ Farming upgrade/energy-nutrient transition (firewood, higher crops yield)
 - ✓ Added values



Recommendations for future policies and investments

- ✓ Huge potential/wide target market (waste-producers in rural and urban areas)
- ✓ Biogas knowledge is spread, but commercial outreach is not as fully expanded
 - ✓ In practice, poor execution of environmental regulations
 - ✓ Limited access to affordable (micro)financing
- ✓ The basis for scaling-up to larger applications
- ✓ Added-values
- ✓ Uphold of biogas quality standards
- ✓ Easy-relocation

References



Colombia, dairy farm 3.136 m above sea level

Gas is mainly used for cooking and digestate is applied to grazing land and kitchen garden





Grenada/Caribbean, farming school

Co-digestion of pig manure and canteen biowaste. Gas is used for slaughtering and cooking





Grenada/Caribbean, pig farm

Pig slurry. Gas is used for household cooking and slaughtering.





Grenada/Caribbean, pig farm

Co-digestion of pig manure and kitchen biowaste. Gas is used for cooking, baking and electricity generation. The fertiliser is spread into vegetable crops.



Testimonial

See how chef Mr. Sandy uses digestate and biogas
<https://bit.ly/37lharr>



Grenada/Caribbean, pig farm

Co-digestion of pig manure and kitchen biowaste. Gas is used for cooking





Grenada/Caribbean, household/restaurant biowaste

Fruit and vegetable waste. Gas is used for cooking





Grenada/Caribbean, agriculture farm

Mango and cassava peels. Gas is used for cooking





Brazil, shrimp production site

Head shrimp waste





Further references



Website

<https://homethan-biogas.com>

Educational video

<http://bit.ly/39Ua324>

Testimonials

<https://bit.ly/2kSAp00>

>250

biogas projects
worldwide

>40

HoMethan
already in use

100%

green energy

Intelligent biogas systems from ÖKOBIT- always a step ahead!

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