

Madsen Bioenergi – Biogas Plant

Main results / outcomes

The biogas plant is a farm plant that processes manure from the region's farmers. The biogas plant is designed to mainly process livestock manure - including deep litter. The plant is also fed with energy crops such as maize and grass and residual products from industry. Madsen Bioenergi is one of the first biogas plants in Denmark which upgrades the biogas to bio-natural gas and deliver it into the Danish natural gas grid. The production currently stands at almost 5 million Nm³ natural gas per year.

The upgrading plant is supplied by the company Ammongas. The heart of the process is the absorber column. In this column, the raw gas is washed with a water-amine mixture, and the amine absorbs CO₂ and H₂S.

Practical recommendations

Biogas can be used instead of fossil fuels such as oil, coal and natural gas. For agriculture's "climate accounting", biogas is of great importance, as the emission of greenhouse gases can be significantly limited by treating livestock manure in a biogas plant. The biogas process also makes the nutrients in manure more readily available to plants. Factors such as transport, consumption of process energy and the methane emissions from the plant must be in focus to ensure maximal environmental benefits.



Figure 1: Madsen Bioenergi.

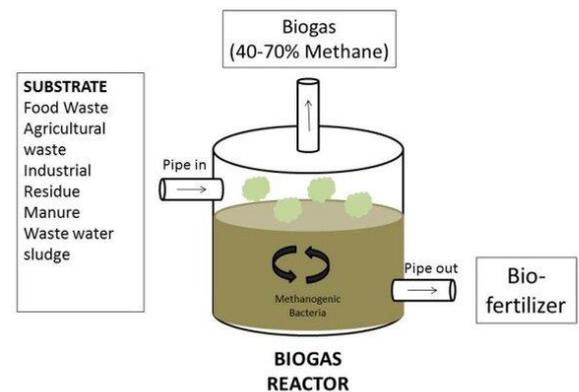


Figure 2. Biogas production process (Lara Anne Hale)

Further information

<https://madsenbioenergi.dk/>
<https://bce.au.dk/en/research/facilities/biogas-plant>

About this abstract

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AgroFossilFree is a H2020 multi-actor project that will evaluate the current status in EU agriculture regarding energy use and assess existing needs, allowing farmers to optimize agricultural production through more efficient energy use and reduced GHG emissions, resulting in economic, agronomic and environmental benefits. AgroFossilFree will create a framework under which critical stakeholders will cooperate to evaluate and promote the currently available Fossil-Energy-Free Technologies and Strategies (FEFTS) in EU agriculture. The project is running from October 2020 to September 2023.

Website: www.agrofossilfree.eu



Madsen Bioenergi, - Biogasanlæg

Resultater

Madsen Bioenergi ejes af 3 brødre: Kim Madsen, Boe Madsen og Per Madsen. Tilsammen driver brødrene 450 ha. agerbrug. I biogasanlægget behandles gylle fra området landmænd. Biogasanlægget er designet til hovedsageligt at behandle husdyrgødning - herunder dybstrøelse. Der anvendes også energiafgrøder som majs og græs samt restprodukter fra industrien. Madsen Bioenergi er et af de første biogasanlæg i Danmark, som opgraderer biogassen til bio-naturgas og leverer den til det danske naturgasnet. Produktionen ligger i dag på næsten 5 millioner Nm³ naturgas om året. Opgraderingsanlægget er leveret af firmaet Ammongas. Hjertet i processen er absorberkolonnen. I denne kolonne vaskes rå-gassen med en vand-amin-blanding, og aminen optager CO₂ og H₂S.

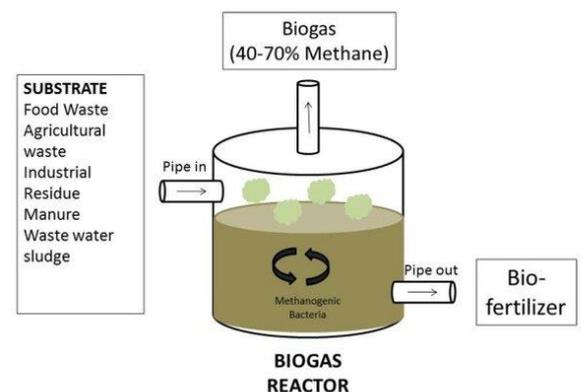
Praksis og anbefalinger

Biogas kan bruges i stedet for fossile brændstoffer som olie, kul og naturgas. For landbrugets "klimaregnskab" har biogas stor betydning, da udledningen af drivhusgasser kan begrænses væsentligt ved at behandle husdyrgødning i et biogasanlæg.

Biogasprocessen gør også næringsstofferne i gylle lettere tilgængelige for planterne. Faktorer som transport, forbrug af procesenergi og metan udledningen (tab på grund af utætheder mm.) fra anlægget skal være i fokus for at sikre maksimal miljøgevinst.



Figur 1: Madsen Bioenergi.



Figur 2. Biogas processen (Lara Anne Hale)

Yderlig information

<https://madsenbioenergi.dk/>

<https://bce.au.dk/en/research/facilities/biogas-plant>

Om dette abstrakt

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AgroFossilFree er et EU Horizon 2020 projekt, der skal evaluere den nuværende status i EU's landbrug med hensyn til energiforbrug og vurdere eksisterende behov, således at landmændene får mulighed for at optimere landbrugsproduktionen gennem mere effektiv energianvendelse og reducerede drivhusgasemissioner. Dette vil resultere i økonomiske, agronomiske og miljømæssige fordele. AgroFossilFree vil skabe en ramme, hvorunder centrale interessenter kan samarbejde om at evaluere og fremme de aktuelt tilgængelige fossil-frie energiteknologier og -strategier (FEFTS) indenfor EU's landbrug. Projektet løber fra oktober 2020 til september 2023.

Website: www.agrofossilfree.eu



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