ATRES
engineering biogas

Biogasproduction out of industrial and municipal organic wastes

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AHK Deutsch-Baltische Handelskammer in Estland, Lettland, Litauen
German-Baltic Chamber of Commerce in Estonia, Latvia, Lithuania

Content

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- What does ATRES stand for?
- Substrates and characteristics
- Examples
- How to proceed

What does ATRES stand for?

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Anaerobic**T**echnologies and **R**enewable **E**nergy**S**ystems

Consulting and laboratory services

Center for Innovations and Entrepreneurs Biotechnology
Technische Universität München, Freising-Weihenstephan

Scopes:

- energy recovery out of
  organic wastes, waste waters and
  energy crops
- research and development

Multi-Feedstock for biogas plants

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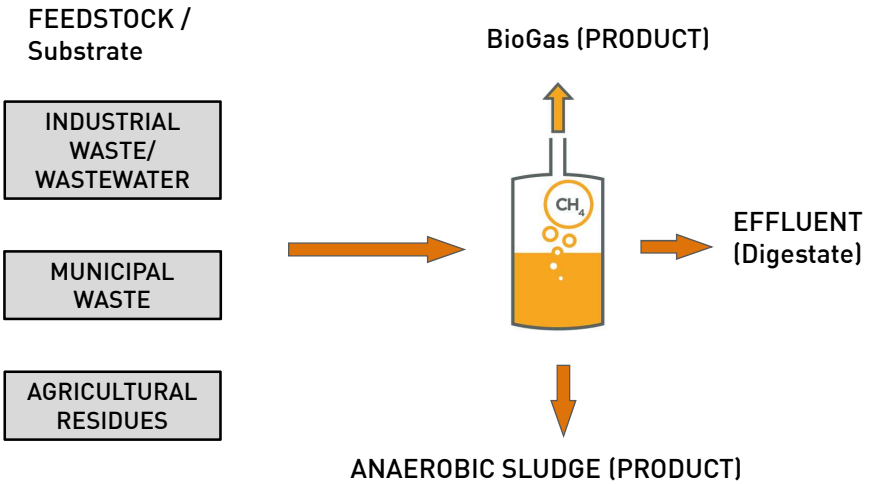

Where do substrates come from?

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Basics

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Legislative restrictions
- Hygienisation

Characteristics of substrateubstrate
- Composition
- Availability
- Preparation
- pH
- Cleaning agents
- Disinfectants
- Trace metals

Substrate´s compositon
- Nutrients
- Blockers
- Degradability

Choosing technologies and techniques

- Mono-/Co-digestion
- One-/two-Phase systems
- Processparameters

Example: Brewery´s production residues

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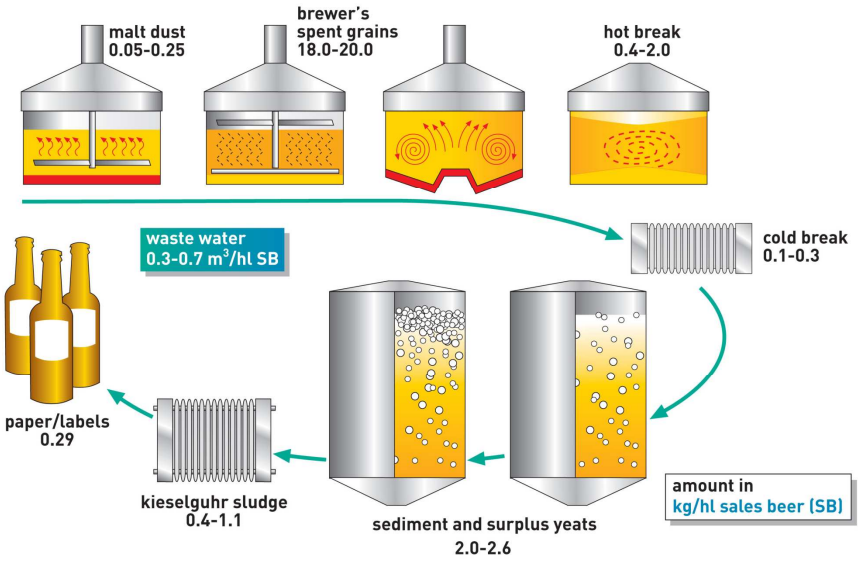

Example: Brewery´s production residues

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Production: 3,5 mio hl sales beer per year

Feedstock	**55 000 t/a** Spent Grain, Yeast, Corn Dust
BioGas Production	**600 Nm³/h BioGas**
BioGas use	**existing CHP → 1.2 MW_{el}**
Pay back period	**4 years**
Space requirement	**~ 2 700 m²**

Example: AD plant incl. effluent treatment

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Pretreatment and preparation

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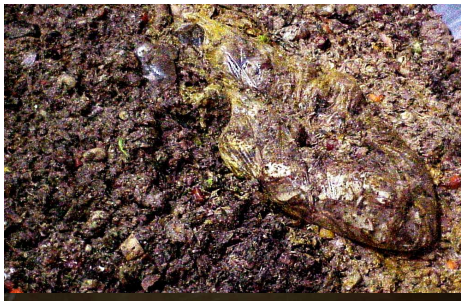

Pre-Treatment - customized

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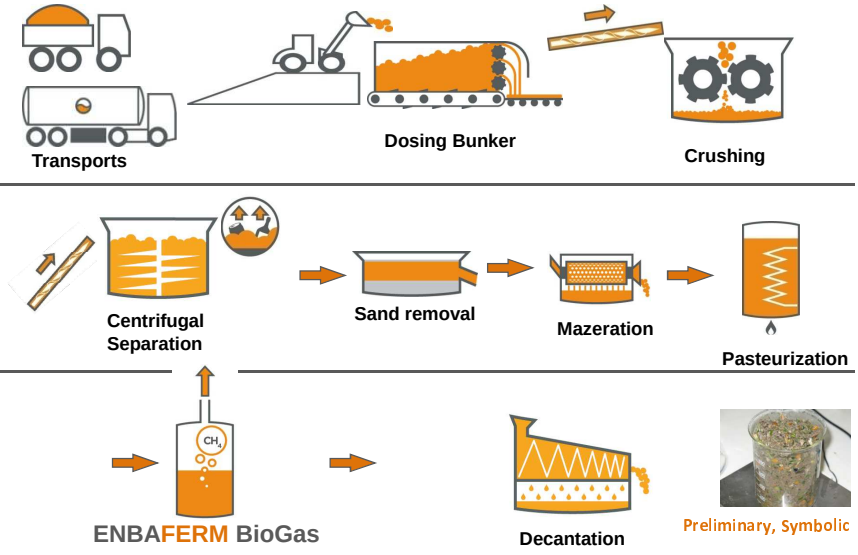

Quelle: enbasys

Example: organic wastes

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Feedstock	125 000 t/a Food waste, Market waste, Sludge, Slaughterhouse waste
BioGas Production	1 800 Nm³ /h Biogas
BioGas use	into CHP → 4 Mw_{el}
Pay back period	5 years
Space requirement	7 500 m²

Views ENBAFERM (3 MW_{el})

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Anlagenbeispiel, Nord-Italien

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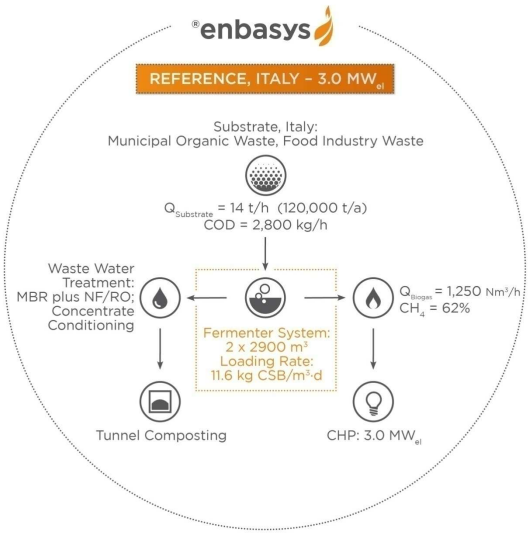

How to proceed, e. g.

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- Characetrisation of available substrate (amount, quality...)
- Checking facilities and infrastructur
- Conceptual/Basic engineering
- Feasibility/Technology study
- Tender, Planning
- Start up, running of the plant
- Optimization of utilisation of feedstock and energy demand

Laboratory services

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- Laboratory, lab-scale-experiments
- Substrate analysis
- Digestion trials (batch, continuous)
- Optimization of digestion processes
- Research and development
- ATRES Nutriment Plus (trace elements)

Customers:

e. g. operators, investors, suppliers

Consultancy services

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- Market and technical surveys/studies
- Feasibility studies
- Tenders (Erstellung und Bewertung)
- Concept, engineering
- Technical due dilligience
- Trainings

Customers:

e. g. industry (brewery, dairy, bioethanol plants...) , investors, governement, suppliers, owners

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