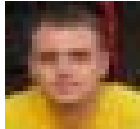


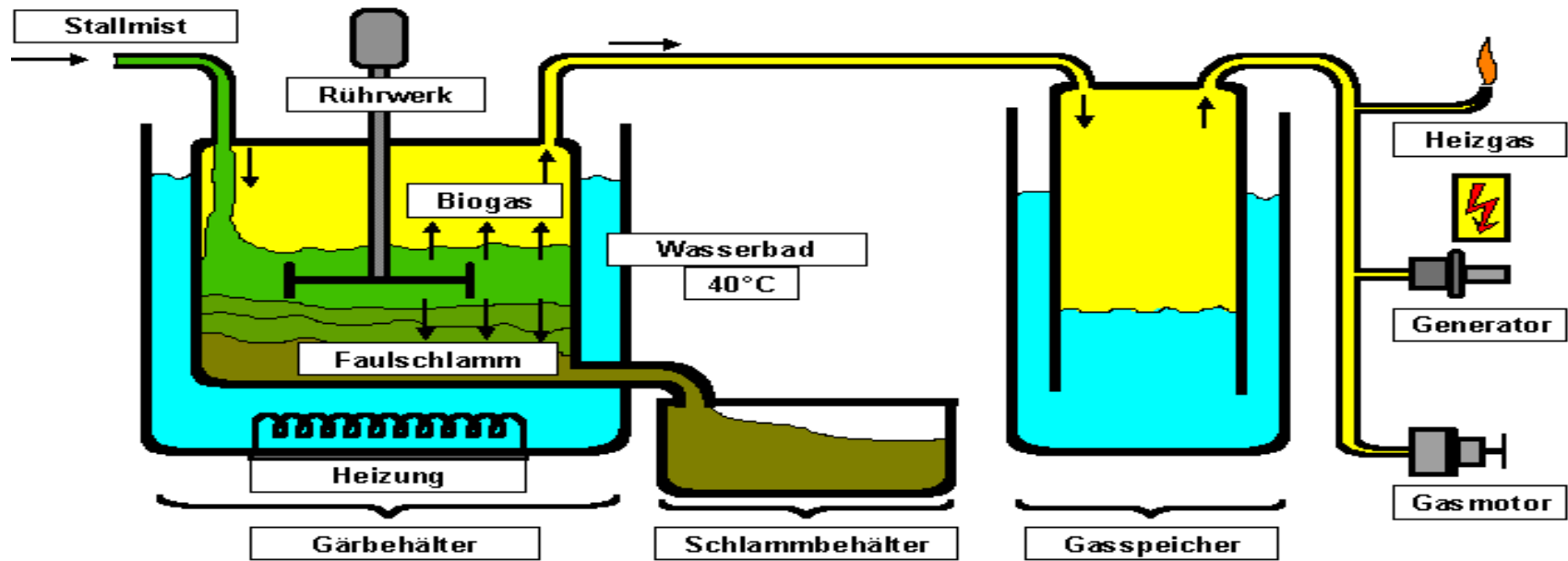
BIOGAS PRODUCTION PRINCIPLE

courtesy to



Ovidiu on February 6th, 2008

Funktionsweise einer Biogasanlage



Biogas is generated when bacteria degrade biological material in the absence of oxygen, in a process known as anaerobic digestion. Since biogas is a mixture of methane (also known as marsh gas or natural gas, CH₄) and carbon dioxide it is a renewable fuel produced from waste treatment. Anaerobic digestion is basically a simple process carried out in a number of steps that can use almost any organic material as a substrate - it occurs in digestive systems, marshes, rubbish dumps, septic tanks and the Arctic Tundra. Humans tend to make the process as complicated as possible by trying to improve on nature in complex machines but a simple approach is still possible, as I hope you see in this website.

Conventional anaerobic digestion has been a “liquid” process, where waste is mixed with water to facilitate digestion, but a “solid” process is also possible, as occurs in landfill sites.

As methane is very hard to compress I see its best use as for stationary fuel, rather than mobile fuel. It takes a lot of energy to compress the gas (this energy is usually just wasted), plus you have the hazard of high pressure. A variable volume storage (flexible bag or floating drum are the two main variants) is much easier and cheaper to arrange than high pressure cylinders, regulators and compressors.

I think biogas is best used directly for cooking/heating, light (pdf) or even absorption refrigeration rather than the complication and energy waste of trying to make electricity from biogas. You can also run pumps and equipment off a gas powered engine rather than using electricity.

There are many advantages of biogas over wood as a cooking fuel:-

- * Less labour than tree felling
- * Trees can be retained
- * Biogas is a quick, easily controlled fuel
- * No smoke or smell (unless there is a leak - then you need to know anyway!) so reduced eye/respiratory irritation
- * Clean pots
- * Sludge is a better fertiliser than manure or synthetic fertilisers (and is cheaper than manufactured products)
- * Reduced pathogen transmission compared to untreated waste

(c) <http://www.adelaide.edu.au/biogas/basic/>

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