



anaerobic digestion

green energy from plants, food waste and animal matter

Fact

“The consequences of climate change and the need to reduce carbon emissions are critical business issues for today”

Business Benefits

- Reduced energy costs with free ‘green’ energy
- Lower heating costs utilising free waste heat
- Additional income with ‘green’ energy exportation
- Improved fertilizer utilising liquid digestate

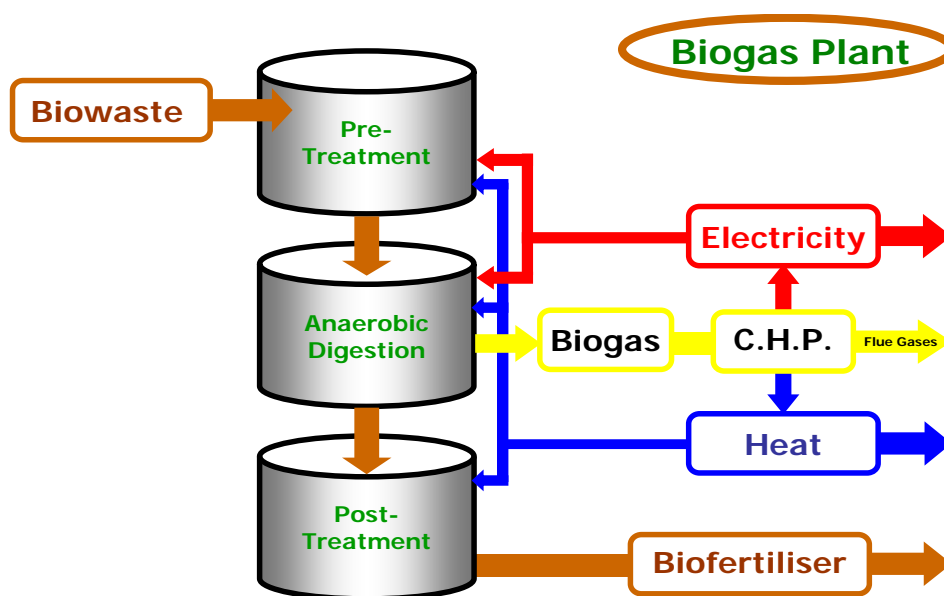
Why Inenco?

- Established in 1968 and leaders in our field
- Over £1 billion energy under management
- Over 150 dedicated and professional staff
- ISO9001:2000 Accredited

Anaerobic Digestion (AD) is a process that converts some of the carbon in organic plant and animal matter into a biogas that consists mainly of Methane (CH₄) and Carbon Dioxide (CO₂). Over 3000 AD plants have already been built in Northern Europe, so the technology is well proven.

The Process

Most of the organic waste (biowaste) including much of the carbon and virtually all the Nitrogen, Phosphorous and Potassium are retained in the ‘spent’ material that comes out of the AD plant (often called ‘digestate’). The liquid digestate is an excellent fertiliser, which has far less odour than other slurries and also contains less pathogens. There is some evidence to show that the use of this liquid digestate can result in a significant reduction in the need for mineral fertilizers. The solid digestate can be used as a bedding material reducing the need for sawdust or straw.



The biogas produced by the AD process is used to run a gas-engine, similar to a truck engine, which drives an electricity generator. As this electricity is produced from a renewable (also called sustainable) fuel, it can be sold for a premium price.

The engine also produces waste heat (over 1 kW of recoverable waste heat for every 1 kW of electricity). Some of this is used in the AD process, however most is available for heating, drying, pasteurisation or any other purpose requiring heat. Each kilowatt of continuous electricity production is worth around £700 per annum at current market prices.

Contact us today to discuss your needs, or visit www.inenco.com

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Frequently asked questions

What feedstocks can be used?

AD can utilise a wide variety of feedstocks from both farm production and from external sources. A farm based digester might use some of the following;

- Animal slurries and manure (including cattle, pig and poultry waste)
- Maize and/or grass silage
- Cash crops such as potatoes, turnips, alfalfa etc
- Glycerol

Glycerol is a by-product from the production of bio-diesel. Supply currently exceeds demand and the cost is therefore falling. Some bio-diesel manufacturers already supply their waste glycerol free of charge.

If the digestate is to be spread on non-arable crops or on crops to be used for industrial processes, then animal by-products (ABP) and sewage sludge may be utilised.

How much work is needed to run an AD plant?

The farm based plants that use non-ABP feedstocks are largely automated with computers controlling the gas engine and digester feeds. Slurries can be pumped into the AD tanks directly from existing pits or tanks. Silage or energy crops can be loaded into hoppers that feed the digester throughout the day using a screw auger system. The only requirement for the plant operator is to fill this hopper once a day. Engine maintenance and any specialised plant maintenance would normally be carried out by an external technician, however some basic maintenance can be carried out by the Owner.

How much feedstock do I need?

The amount of biogas that is produced depends on the type and quality of feedstock, in particular the amount of dry organic solids present. Some indicative quantities are given below to show the amount of feedstock needed to produce 1 kilowatt of electricity continuously (assumes 8200 hour per year of operation)

To produce 1kW continuously requires about;

- 5 cows in sheds (i.e. all the slurry is collected), or
- 1.5 acres of maize, or
- 4.5 tonnes of glycerol, or
- 27 tonnes of food waste, or
- 175 tonnes of sewage sludge, or a combination of the above

How big is the AD Plant?

Plant sizes around 500 kW are common in Germany, however the plant size is tailored to the size of the farm (or cooperative of farms).

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