Gas

Gas

EPi's technology offers the potential for substantial recovery of energy from all manner of organic materials. This process should not be confused with the term "Energy From Waste" where incineration plants merely use part of the heat generated from their process, as a means of recovering small amounts of energy. EPi uses organic matter as a raw material in a conversion process that produces an energy rich gas stream. Different materials need to be treated in different ways in order to produce the best possible gas stream and our unique process has the ability to vary and control process conditions, in order to enable us to optimise the many factors affecting the final product.

EPi's groundbreaking technology is an entirely closed process. Nothing is released to atmosphere and no materials are combusted as part of our process. Every last molecule of gas is captured in readiness for re-use in the production of energy.

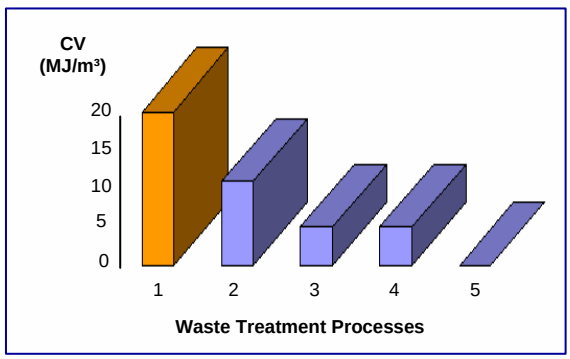
The Gas output is carefully managed and conditioned at various stages of the process. This enables us to maximise both the volume and energy content of the gas according to each individual feedstock. From the point at which organic matter is converted into gas, we apply five distinct process phases in order to improve and condition the gas, thereby maximising the opportunity to produce renewable energy.

Dioxins, Furans, Nitrous Oxides and Sulphurous Oxides are all products of combustion. Our process does not involve any form of combustion in order to convert the organic matter into an energy rich gas, therefore none of the emissions normally associated with thermal processes apply to EPi's unique technology.

Our gas streams are cleaner, more manageable and offer a higher energy content than any other system currently available in the field of recovery and treatment of waste. The potential for any gas to produce energy is measured in terms of its calorific content. The following tables and graphs illustrate the potential energy value typically available from EPi's gas streams and compare the equivalent calorific value of gas outputs from the leading environmental technologies, many of which are only now beginning to become available.

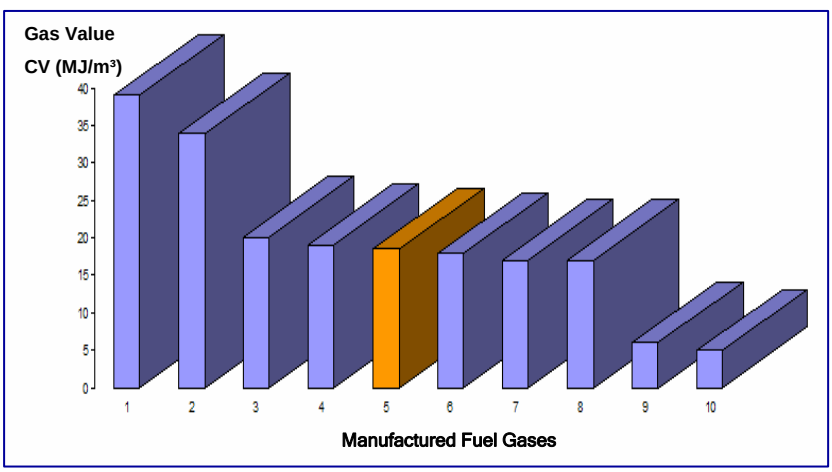
Thermal Treatment Processes	Gas Value CV MJ/m³	Further Heat Available ?
1. EPi Pyrolysis	18.50	Yes
2. Gasifier - Blown Oxygen (In Development - USA)	10.00	Yes
3. Pyrolysis & Gasification (Combined Processes)	4.50	Yes
4. Down Draft Gasifier (Air Blown)	4.50	Yes
5. Incineration	0.00	Yes (Sole Source)

Calorific Values of Synthetic Gas



The gas streams shown above compare the energy value of EPi's technology, with those from the very best of the new technologies which are only now beginning to emerge into the global market place. In terms of energy value it can be seen that EPi's gas stream holds over 4 times the energy value of the two most promising technologies. (Oxygen blown gasification still being very much in development). On this basis it is perfectly reasonable to expect EPi's gas stream to produce four times as much electrical output as any of these other processes.

Comparative Calorific Values of Manufactured Gas



Gas Type	CV (MJ/m³)
1. North Sea Gas	39
2. Coal Gas (Low Temp)	34
3. Coal Gas Coke Oven	20
4. Water Gas Carburetted	19
5. EPi Gas Stream	18.5
6. Coal Gas (Steaming)	18
7. Landfill Gas	17
8. Bio Gas	17
9. Producer Gas (Coal)	6
10.Producer Gas (Coke)	5

The gas produced by EPi is of such good quality, that it readily stands comparison with the primary manufactured fuel gases. i.e. Gases which are produced for no other purpose than the subsequent production of energy. The above table shows a range of the primary fuel gases. With the exception of North Sea and Low Temp Coal Gas, EPi holds its own with the very best of them. Different materials will produce varying amounts of gas, but as a general indication one tonne of material at 15 - 20% moisture produces 650 - 850 cubic metres of high energy gas.

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