

Sublimator



instantly convert waste to energy



SUBLIMATION is an advanced technology to convert solid and liquid waste to a clean combustible gas and activated carbon (Biochar)

It is **not** a burning, combustion, anaerobic digestion, or an incineration process. The Methane rich biogas produced can be used as a fuel source or injected back into the national gas network.

The conversion of the waste is carried out in a sealed chamber at a high temperature, there are no emissions during this process and the products produced are gas and Biochar.

Biochar

The Sublimation Process generates a high quality activated carbon while processing any type of organic material. The value and quality of the final activated carbon is dependent on the initial feedstock. Wood or tyres produce a better carbon than would Municipal Solid Waste (MSW).

After cooling, the Activated Carbon is screened, graded, and packaged. Depending on the application and feedstock, packaging could be anything from fibre drums to bulk tankers. Due to the inherent efficiency and automation of the Sublimation process, grading and packing can be fully automatic..



Biogas

The Sublimation Energy Process is a closed loop system. As the feedstock enters the unit, it is indirectly heated, almost instantaneously, to over 850° C. The entire “hot zone” is enclosed in a shell that is highly insulated for high thermal efficiency. Volatiles are “cracked” and driven from the material and captured as natural gas.

Since the gas travels with the Biochar that is produced, the carbon chemically captures any unwanted elements leaving the gas clean and devoid of any sulphur, chlorine, etc. The rapid expansion of the gas performs the function of activating the remaining carbon material. The resulting gases that form are drawn off and processed within the unit and then sent to storage or direct to a CHP for the generation of electrical energy.



Typical 30 Tonne per Day System

INPUTS

Fuel Input:	30 Tonnes of woodchip per day (10% moisture) 8000 Tonnes per year	4.9MW
Heat Input:	(from gas generated by Sublimator)	200KW
Electrical Input:	(from CHP)	30KW

OUTPUTS

Gas:	70% Methane Rich Gas.	2.5MW
Bio-Char:	60% Activated Carbon plus minerals.	2.2MW

GAS CHP

Electric:	40% efficient, 20.4% overall.	1MW
Heat:	48% efficient, 24.5% overall.	1.2MW

Capital Cost:	£2,000,000
Running cost:	£100,000 pa

Electricity bill saving:	£700,800
Heating bill saving:	£315,360
Double ROCs:	£876,000

**Total saving per annum
£1,892,160**

Simple payback: 2 years

Qualifies for:

- Double ROCs
- RHI
- Enhanced Capital Allowance
- CCL exemption

Based on 24 hour running 365 days a year. Electricity at 8p/kWh. Gas at 3p/kWh. (No fuel costs and no pre processing of fuel required).

Model	Type of Fuel	Quantity	Input Energy	Output gas Calorific Value	Bio Char Calorific Value	CHP Size (electrical)	CHP Size (heat)	Guide Price
		Tonnes/yr	MW	MW	MW	MW	MW	GBP
BG_3	Woodchip	1000	0.5	0.25	0.22	0.095	0.137	£0.5M
BG_10	Woodchip	3600	1.6	0.83	0.73	0.33	0.396	£1M
BG_30	Woodchip	10000	4.9	2.50	2.20	1	1.2	£1.76M
BG_100	Woodchip	37000	16.3	8.33	7.33	3.6	3.9	£3.7M



HELEC Limited Lye Cross Road, Redhill, BS40 5RH
T: 01934 862264 F: 01934 863582
E: info@helec.co.uk W: www.helec.co.uk

