

## Experts in Environmental Technologies

### Onsite Waste to Energy

This small scale innovative technology is based on staged and separated pyrolysis, gasification and high temperature oxidation.

The unit is capable of destroying many different types of waste (including medical and plastics, with no pre-treatment), with the option of additional heat recovery, whilst producing only ash/char and a controlled amount of gas (with low emissions). The technology is designed for continuous operation with very little downtime.

The PyroVore is a compact unit (small footprint and minimal noise) which is able to process up to 1,500 tonnes of waste per year and offers significant savings on energy and waste disposal costs and therefore a broad range of potential applications.

### PyroVore Features:

- Can process 85% of the European Waste Catalogue of materials, including municipal, industrial, clinical & hazardous wastes
- Capable of processing up to 250kg/hr, heat output of up to 750 kWth
- Ash volume is typically 5 to 10% of the input volume
- 24 hour operation



Waste should be regarded as a fuel and thus has a value. Onsite waste destruction and heat recovery enables the realisation of this value.



#### DECREASE WASTE DISPOSAL COSTS

Take control and fix your waste costs.



#### GENERATE RENEWABLE HEAT

Recover latent heat from waste streams to offset heating costs.



#### REDUCE VEHICLE MOVEMENTS

Destroying waste onsite, at source, greatly reduces the requirement to truck waste with associated economic and environmental benefits.



#### CLEAN TECHNOLOGY

Low emissions, CO2 reduction with heat offset and fewer truck movements, greatly reduced landfill.

## Talk to the global experts

We help our clients at every stage of the process cycle, from problem solving to engineering complete solutions and providing ground breaking technologies. To find out how we can support you:

Call +44 (0)1275 841 300

Or visit [www.dps-environmental.com](http://www.dps-environmental.com)

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pyroVore  
ST SERIES

Onsite Waste to Energy



### 1 WASTE HOPPER AND COMPACTOR SCREW

Waste is tipped into a reception hopper that feeds the compactor. The waste is densified making it easier to transport, expresses the air from the waste and provides a seal between the atmosphere and the thermal process. This seal ensures that air is not drawn into the process. If it were, combustion would be promoted rather than pyrolysis.

### 2 PYROLYSER

The first stage of the thermal process is pyrolysis, which is the thermal decomposition of organic material by the action of heat alone. In order to do this the waste is fed along a tube using a screw. The tube is externally heated using gases from later in the process to around 800°C. The heat dries the waste then decomposes organic molecules to form a gas and vapour mixture mostly made up of water, carbon monoxide and dioxide, hydrogen, methane and ethane. The balance of the material is left as a carbon char and ash. Inert materials (such as metal and glass) are merely heated and passed through the tube unaffected.

### PyroVore Benefits:

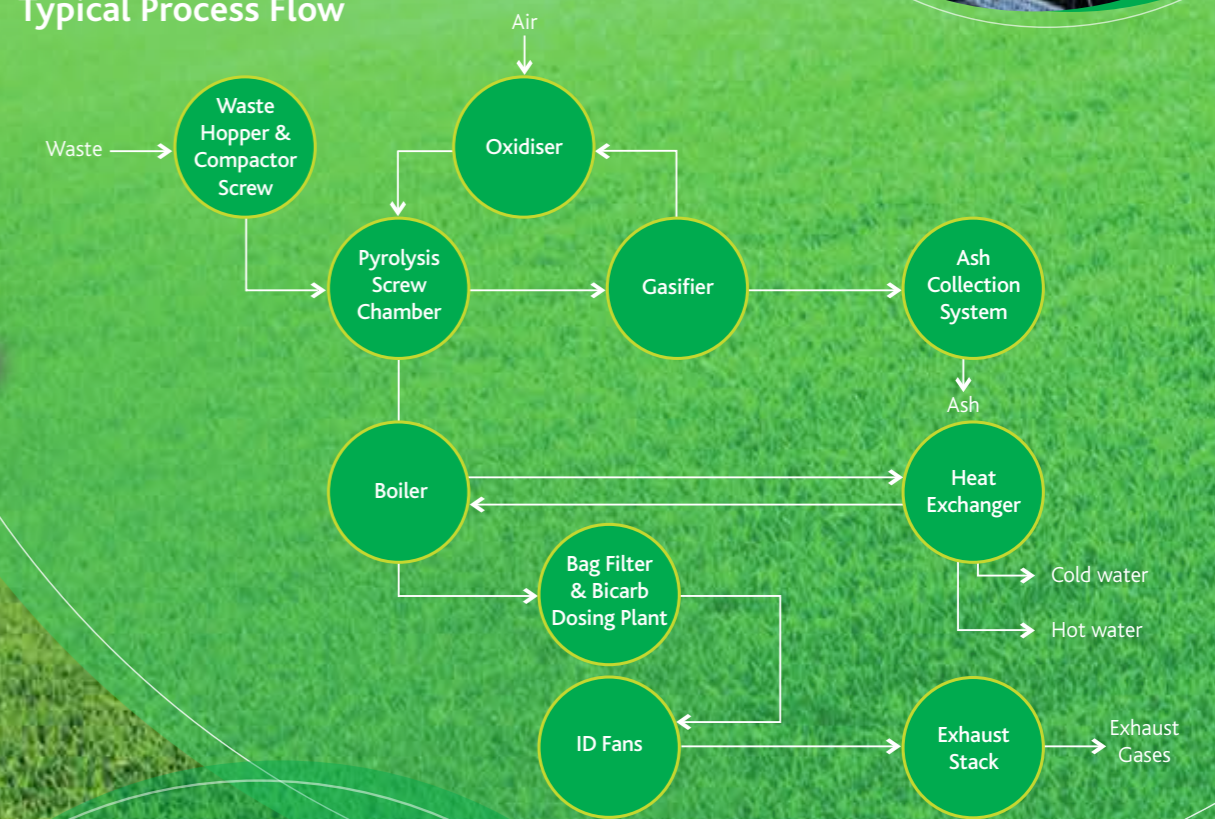
- Accepts a variable range of wastes with no pre-treatment required
- Easily integrated into existing systems to provide energy for heating and hot water, or absorption chilling
- Reliable, proven technology
- Significant savings on energy and waste disposal costs
- Minimal visual footprint and low noise
- Low emissions & reduced carbon footprint.



### 5 OXIDISER

The gases generated in the pyrolyser and gasifier are fed forward into the oxidiser, which is a refractory-lined combustion vessel. The gases are combusted by mixture with a controlled amount of air in this environment. This is a highly exothermic reaction, which maintains the temperature. The products of this reaction go forward to the pyrolyser, where they are used to heat the waste in the pyrolysis stage.

### Typical Process Flow



### 4 ASH COLLECTION VESSEL

At the end of the tube the inert char and ash is discharged into a refractory-lined vessel, where it is stored before being discharged into ash containers via another screw system.

### 3 GASIFIER

The gasifier acts as a buffer store for completion of the pyrolysis process. Steam and air are injected into the base of the gasifier to further reduce the volume and carbon content. The waste feed stock is reduced in mass to between 5% and 10% of its original weight.

### HEAT RECLAMATION

There is an excess of heat remaining in the gas once it has completed the pyrolysis process, and this will be reclaimed using an indirect heat exchanger/waste heat boiler. The thermal plant nominal capacity is 750kWth, which equates to 600kW of steam based on an 80% efficient boiler.

### FAN

The plant is maintained under negative pressure by the use of ID fans at the back of the plant. This ensures process safety, as any leak or failure in the process will lead to air ingress rather than gas escape. The fans discharge the gas via a flue to atmosphere.

