



 **BIOWASTE  
PYROLYSIS  
SOLUTIONS**  
WASTE ENERGY REINVENTED

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**Disposing of waste is a massive global problem**





**Biowaste Pyrolysis Solutions is dedicated to providing pyrolysis technology to eliminate wastewater sludge by converting it to energy and an inert inorganic residue.**

Disposing of waste is a massive global problem. The potential reach of a pyrolysis solution is nearly unlimited. While the general technology has been around for many years, only recently has Technotherm applied their thermal processing expertise to create systems that are safe, clean, efficient and cost effective. Over the past 40 years, Technotherm has become a leader in thermal processing for a wide range of industries. Pyrolysis development began over 10 years ago. The firm has designed systems for various plant sizes and types of wastewater sludge.

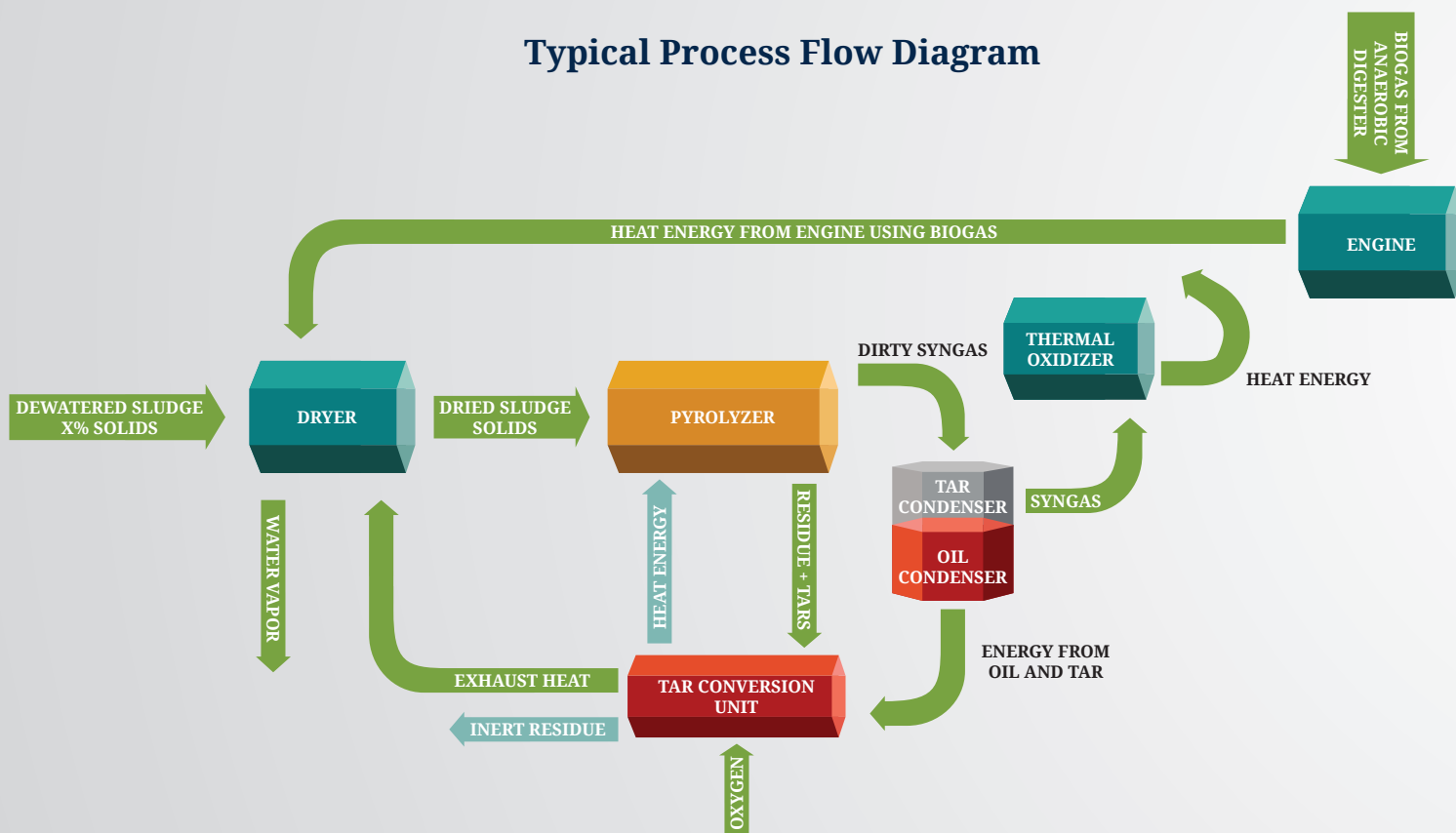
BPS is Technotherm's sales and support organization in the Americas. While the manufacturing may be in South Africa, both sales and technical support are local. Working together, we can design, manufacture and maintain the phase pyrolysis equipment that will solve your sewage sludge disposal problem.



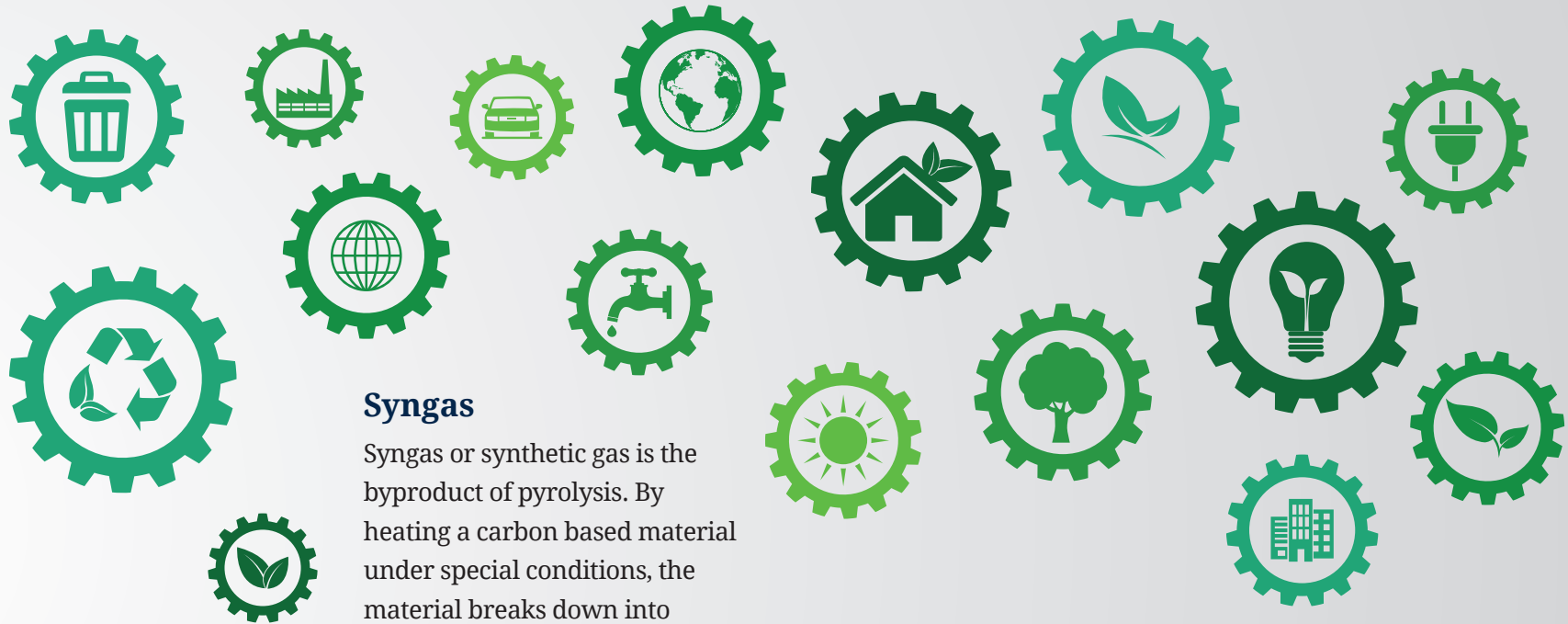
## Technology

BPS phase pyrolysis consists of four distinct subsystems: drying, pyrolysis, syngas cleaning and system control. Each subsystem is evaluated and custom designed to meet customer needs. At the same time, every system is tied together to optimize energy use. If the mass energy flow is favorable enough, there will be opportunity to generate hot water and/or electricity.

### Typical Process Flow Diagram







### Syngas

Syngas or synthetic gas is the byproduct of pyrolysis. By heating a carbon based material under special conditions, the material breaks down into smaller components (thermal decomposition). Natural gas by comparison is 95% methane (CH<sub>4</sub>). Syngas composition will vary. However, the typical composition is carbon monoxide (CO), hydrogen (H<sub>2</sub>) and methane (CH<sub>4</sub>). While syngas is not as concentrated in energy as natural gas, it has plenty of BTUs.

### Self-Sustaining

Outside of a small amount of fuel required for startup, the process produces all its own energy. There will be no fuel bills for heating or drying. Once at a steady state the machinery will run for months, with little to no maintenance.

### Low Maintenance

The system is closed and self contained. Minor day to day house cleaning can be performed by local staff. An electronic control panel will be installed and monitored. Monthly and annual service will be provided by BPS.

### Advanced Technology

Pyrolysis systems made by Technotherm are highly automated. While there will be an electronic panel in the customers control room, full SCADA system is built in and will be monitored on a 24/7 basis by BPS personnel.

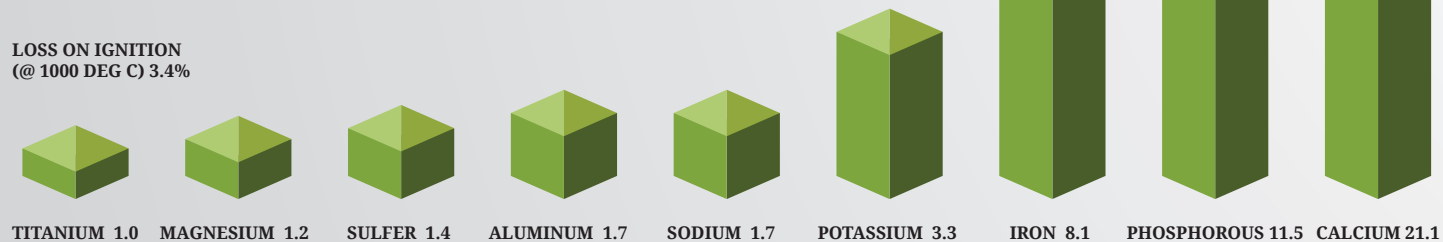


## Environmentally Friendly

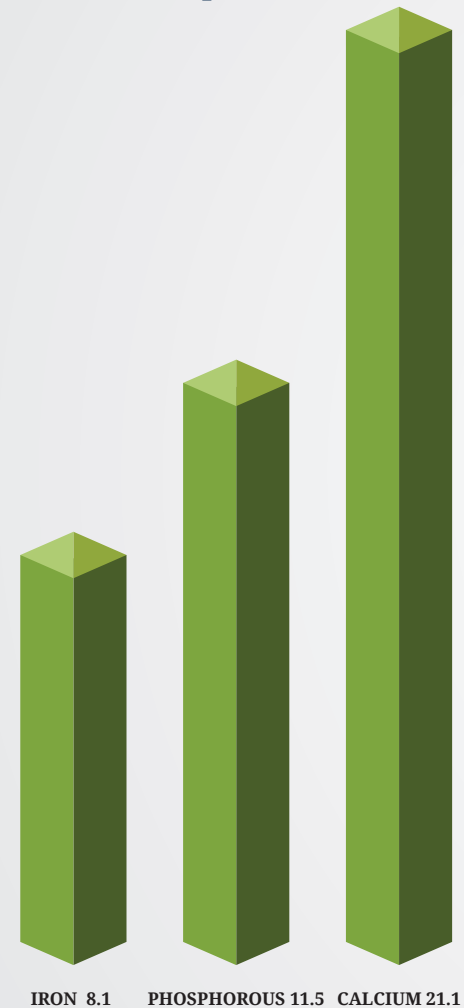
The BPS process is based completely on using waste material for energy. As such, it has a ZERO carbon footprint. In many cases, there will be excess energy available providing a negative carbon footprint.

There are two places in the system for discharges: dryer venting and residue discharge. Moisture reduction is accomplished by using waste heat from the tar conversion unit and syngas from the pyrolysis itself. Moisture discharge is monitored and contains water vapor with minimum contaminants. Odor issues are rare, but can be addressed if needed.

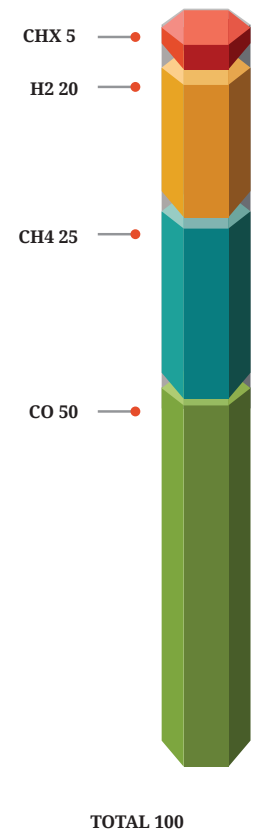
The residue is made up mostly of calcium, phosphorus, magnesium and potassium. It is sterile and completely free of carbon. As such, the residue can be used as a fertilizer. It can also be used as filler for asphalt, or concrete or can be used as landfill cover. The volume of residue will be less than 5% of the starting sewage cake.



## Typical Residue Composition (Component %)



## Typical Syngas Composition (Component %)



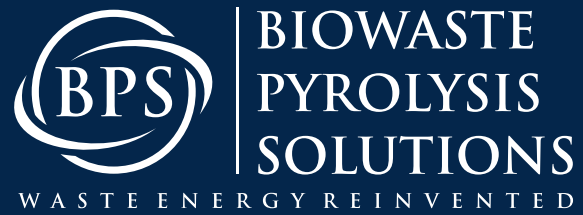


## **Cooperation**

Whether you are looking for a turnkey solution or an outright purchase, BPS is happy to develop a custom proposal to meet your needs.







## Contact

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