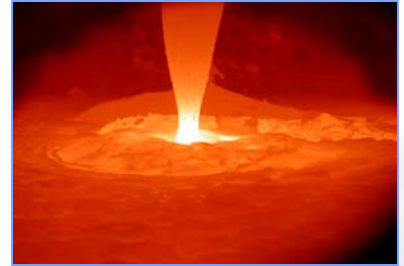


PEM™ Technology

What is PEM™?

The PEM™, developed by Integrated Environmental Technologies and offered to the Department of Defense through a joint venture with Tepas, uses electricity to create very high temperature plasma to gasify waste. When waste is placed into the plasma, the organic fraction quickly breaks down into elemental constituents and, through a process of steam reformation and partial oxidation, forms a “synthesis gas” or “syngas” consisting of primarily hydrogen (H₂) and carbon monoxide (CO). The syngas is processed with cleaning and purification equipment to produce a high purity, industrial quality syngas that can be used for a variety of purposes. Through an exclusive joint venture relationship, Tepas can deliver this technology to its clients’



PEM Technology

Non-combustion / non-incineration process

The PEM system itself has no air emission points during normal operating conditions

Unique plasma system converts all carbonaceous material into clean usable syngas

Primary purpose of system is to gasify organic material, producing a usable syngas

Inorganic constituents form a glassy solid or metal product



Waste Processed in the PEM

- Municipal Solid Waste
- Medical and Electronic Waste
- Chlorinated Hydrocarbons
- Asbestos
- PCB's and Heavy Metals
- Batteries
- Auto Shredder Residue
- Disaster Debris



Mobile unit at Fort Riley Kansas

Leading the Way to Tomorrow



Tepas EC and



PEM™ Advantages for Waste Treatment

Advantages to using the PEM™

- Handles a range of feedstocks – solids, liquids, and gases
- Minimal feed preparation
- Produces hydrogen, CO (syngas) and/or excess power from organic waste feeds
- Reducing atmosphere greatly inhibits NOx and dioxin formation reducing emissions to ultra low levels
- Inorganic material melted and converted into stable, non-leachable glass
- Hydrogen-rich gas used directly as fuel to generate electricity on-site
- Hydrogen-rich gas enables very lean operation of turbines and reciprocating engines
- Ultra low emissions improves prospects for siting and permitting and reduces need for expensive pollution control equipment

Volume Reduction

1 Ton ~180 Cu Ft



2 Cu Ft

