

PLASMA PYROLYSIS

PLASMA PYROLYSIS FOR MEDICAL WASTE

Plasma is the state of matter obtained by breaking down atoms into ions and electrons by the process of ionization. Plasmas can quite easily reach temperatures of 10,000 degree Celsius.

Plasma technologies offer unique solutions to meet the increasing demands of dematerialization to develop ecologically sensible industrial practices like high temperatures, high chemical reactivity, high energy density and ability to process solids liquids and gases. In plasma pyrolysis, generation of heat is independent of chemistry of material used. It is fast quenching and consumes small quantity of gas. The high pathogens and waste to be treated could be dry or wet. It is possible to recover energy in the form of carbon monoxide and hydrogen.

Plasma pyrolysis provides solutions for complete pyrolysis of typical hospital waste such as cellulose polymer dressings, polyvinyl chloride blood bags, polyurethane and silicon rubber gloves & catheters and other disposables made of polyethylene, polymethyl methacrylate, rubber, glass etc. The system provides high temperature combined with high UV radiation flux which destroys pathogens completely.

For the safe disposal of medical waste, FCIPT of the institute for Plasma Research has developed a Plasma Pyrolyser which incinerates waste using plasma technology.

Technical Brief of Plasma Pyrolyser

- Plasma Pyrolysis System incorporates “CASS” (Complete Automated Safety System) that ensures an operating environment, which exceeds any safety norms.
- The cost of installing, operating and maintaining the Plasma Pyrolysis System is on par with conventional incineration facilities of similar capacity.
- The inherent simplicity, lack of moving parts, system redundancy, automation and proven stability of the Plasma Pyrolysis System ensure very high reliability with minimal downtime and maintenance requirements.
- .Electricity requirement is very low. It is less than 1 KWH per kg of charge (approx.). With the exception of start up and shut down, the plasma field is normally sufficient to maintain operating
- Temperatures. With the additions of oxygen generators and co-generation, operating cost are well below and conventional waste processing or energy production systems in the market today

The system is microprocessor controlled, allowing one individual to operate one processing reactor systems, including loading and temperature controls.