

Waste Magnetic Pyrolysis Energy Conversion Reactor

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Abstract

The planet's environmental problem, such as global warming, becomes a major problem in all countries regardless of advanced countries or developing countries. This reactor is a new concept of eco-friendly organic waste magnetic reactor complemented the existing waste disposal problems. Organic waste is the inevitable product in modern society, with the social and economic development, wastes year-on-year increase. The generated garbage has nearly 200 billion tons every year, and organic waste weights nearly one hundred billion tons. Traditional processing method of garbage is landfill and incineration. Incineration has the problems in taking too much energy source and off-gas may have secondary pollution. Organic matter combustion produces acid gases, such as HCl, HF, NO_x, Poisonous chlorine polymer compounds and so on, and these generally referred to as the dioxin-like substances. A few years ago, based on dry sliding technology, in dry sneak, scientists force to enter a certain amount of powerful magnetization air.

By using magnetization airflow (The automatic control requirements) and with the steady temperature (200~400 °C), it formed the negative pressure state of ionization space in the enclosed storehouse, and then, timely adding into a small amount of oxygen makes the combination between the oxygen atoms [O₂] break up. [O₂] becomes lively and unstable and highly reactive oxygen atoms. Under the condition of closed magnetic heat effect, electron accelerates from the separation of atoms. Negatively charged electrons and positively charged nucleus constantly interact with each other and form a plasma state. The plasma state oxygen with powerful energy can start quickly and will completely oxidized organic matter from the surface into scrawled oxide element to the element state, and the treated organic matter was indirect magnetization, which greatly improve the pyrolysis.

It gives off heat in the process. Electronic, by separation of acceleration, infiltrate into the treated organic molecular chain, and by taking organic hydrocarbon structure of hydrogen or by infiltrating into carbon molecules, tore the carbon molecules chain, then spreads rapidly around, it forms pyrolysis field with great energy, makes the organic matter completely carbide, completes free-pollution disposal of organic hazardous substances.

The findings revealed that injecting electrons into the air accelerated the combustion of the produced gas, increased temperature homogenization, accelerated the release of the major pyrolysis products (H₂, CO, and CH₄), and increased heat energy consumption. The ionic wind not only contributed to these occurrences, but it also produced some of the observed consequences, such as the generation of thermo-diffusive instabilities, which altered the flame propagation speed. The presence of the electric field caused the generation of light radicals primarily in the preheating zone due to dissociative recombination of the ions. The weight reduction rate of biomass rose in the electron ON case, and the electric field accelerated thermal breakdown and CO and H₂ production. When electrons from an electron generator interacted with air and pyrolysis gas molecules in the pyrolysis zone, secondary electrons were created, resulting in the formation of ions and radicals. In addition, the heat created by the gas combustion was transmitted to the pyrolysis combustion zone of carbonized organic matter.

Since the Oxygen which became an anion inside of the decomposition furnace, has a strong oxidizing power, dioxins and toxic substances are oxidized and decomposed by it, and oxidized and decomposed materials are made with Ceramic Minerals concentrated magnetic ion ashes and concentrated electric ion ceramic ashes. Ash utilization which is confirmed currently can be used for water purification, deodorizing effect, insecticide, antibacterial, antifungal.

A hypothesis was constructed based on all the experimental and computational data to describe what processes occurred within the reactor while utilizing ions in the thermal degradation of biomass. In the enclosed reactor, the

negative pressure condition of the ionization region was generated utilizing electron injected airflow. Following that, a limited number of oxygen molecules were broken down into oxygen atoms. As a result, oxygen atoms [O₂] became vivacious, unstable, and extremely reactive. The electrons accelerated the separation of atoms under the influence of the electric field. Negatively charged electrons and positively charged nuclei interacted continually, causing the oxidation process to begin fast and thoroughly oxidize the organic substance.