



Plasma Technology and Waste Management

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ABSTRACT

Wastes emerged to be an opportunity to generate valuable materials and products for human demands. Particularly in non-developed countries, recycling of resources have become a prominent revenue source for society. Numerous researches are conducting and developing to manage wastes by new technologies over the world day by day. Present editorial paper focuses on recent advances and plasma technology applications in order to manage the wastes. Therefore, it comprises a review manuscript encompassing the plasma reactors for converting and following by depositing some new products employing Chemical Vapor Deposition (CVD). By the way, it has been attempted to explain the procedure used and the wastes converted to synthetic gas (syngas) for diamond deposition operation by gathering new studies and techniques developed in this field. Materials can be appeared in any of fourth states such as solid, liquid, gas and plasma states. Plasmas forces are being generated via motivating the energy content of matters employing mechanical, thermal, chemical, radiation, rays, electrical, nucleus, energies, combination of them, energies of thermal, mechanical (explosives) depend on type of application as cold or hot plasmas. Plasma forces are the most prominent techniques to remove and retrieve waste materials in any states. The conversion of miscellaneous organic components to macromolecular thin layers up to make up highly and less cross-linked polymers, more highly functionalized films and modified surfaces has been realized by plasma forces. Also, thermal plasma is being applied in the reformation of natural gas, H₂ generation, fuel cells and H₂-rich gases and alterations in the state of matter [1].

In many reports plasma forces assigned for gasification of different wastes such as rubbish derived fuel (paper, biomass and plastic), glycerol as a byproduct of biodiesel steam, biomass, plastics, paper, Aluminum foil, cloth, rubber, wood, tree branches, metals, concrete, bricks, tiles and ceramic, glass, cellulose, bitumen, coal, pet-coke, existing Hydrocarbons (HCs) in gases of hazardous wastes and raw waste vegetables mixed with raw wood; using Micro Wave (MW), gliding arc, plastron, Radio Frequency (RF) plasma, plasma torch and other thermal plasmas. The output gases utilized for lots of applications as synga.

Keywords: Plasma technology; Waste management