过程与工艺

Treatment of Waste Tyre Powder Using a High-frequency Capacitively Coupled Plasma Reactor

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摘要 A high-frequency (HF) capacitively coupled plasma reactor was developed to study the pyrolysis of waste tyre powder. The main objective was to generate a plasma at medium pressure and moderate temperatures for waste tyre powder gasification. Description of the reactor setup and experimental results concerning the plasma characteristics and product gas composition were presented, and potential use of the pyrolytic char was also discussed. Plasma temperatures were found to be between 1073 K to 1773 K, and under optimum operating conditions, over 70% of the tyre feed was converted into gaseous products by the treatment process. Pyrolysed gas was a mixture of H2, CO, CH4 and other organic compounds. The pyrolytic char may be used as low cost activated carbon for treating the species with large molecular weight.

关键词 high-frequency plasma,waste tyre,pyrolysis,syngas,pyrolytic char

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