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Characterization and computer simulation of various biomass / coal blends for co-gasification for electricity generation

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Abstract content
 (Max 300 words)

The paper reports on characterization and computer simulation of various biomass / coal blends at different ratios, to determine the best mixture for co-gasification. Biomass (chicken litter, corn stover, pine wood, eucalyptus wood and cowdung), and coal (bituminous and lignite) were used in the study. A CHNS analyzer was used for elemental (ultimate) analysis of various blends. Thermogravimetric analysis (TGA) was conducted to investigate the thermal stability of various blends, and to conduct proximate analysis of the blends. The data obtained from CHNS and TGA analysis was used to undertake computer simulation of the gasification process to establish the blend/s that results in maximum conversion efficiency and also to investigate the gasifier parameters that results in maximum possible efficiency. The results obtained indicate that the blend with 90% corn stover and 10% coal gives the highest conversion efficiency.

Keyword: Co-gasification, computer simulation, ultimate analysis, thermogravimetric analysis and efficiency.

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