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Studies on Characterization of Sawdust for Application in a Gasification Process for Syngas Production

Abstract- Quintessential characteristics of sawdust were investigated in this study as well as to investigate the ability of reed as a Production of gases via gasification technique by using special gasifier made for this purpose. The physical properties of solid waste results showed that sawdust were suitable for using in production of syngas due to its high volatile matter and cellulose content and low moisture content. The CHNS analysis results showed that high content of hydrogen for sawdust has generated higher amount of syngas heat value, while gravimetric analysis results showed that high cellulose and hemicellulose content gave higher concentration of hydrogen gas. The percentage of production gases was 15.6%, 10.2%, 7.81% and 1.69% for carbon monoxide, carbon dioxide, hydrogen and methane respectively. The effect of operation time on composition of syngas was investigated to generate good quality gas from different types of solid waste. The quality of syngas was started decreasing after about 30 min of gasifier operation. Therefore, each full capacity run should be limited to only 30 min until refeeding is required.

Keywords- Gasifire, Sawdust, syngas, biomass materials.

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