

BIOMASS CHARACTERIZATION AND GASIFICATION FOR TRANSPORTATION FUELS PRODUCTION

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Biomass gasification process can be used for “green” power or fuel production. Although it is relatively mature technology compared to other thermochemical and biochemical processes, systematic studies have not been conducted to understand the role of biomass properties on syngas composition. The purpose of this study was to understand the effect of biomass properties on syngas quality. Six different biomasses were used: clean pine wood chips, switchgrass pellets, peanut hull pellets, hardwood pellets, corn stover and peanut hulls. A downdraft gasifier was used for the conversion process. Laboratory analyses were carried out to characterize the biomass with physical and chemical properties as well as syngas composition from the gasifier. The laboratory analyses showed that peanut hull pellets had the highest heating value whereas corn stover had the lowest heating value. Syngas results along with carbon balance and energy analysis data will be discussed during the presentation.