

## Biomass Gasification in a Dual Fluidized Bed

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Biomass (sawdust) gasification characteristics in a dual fluidized bed which consists of a riser (0.078 m-I.D x 8.6 m-high) as a combustor and in a bubbling bed as a gasifier (0.2 m-I.D. x 2.1 m-high) has been determined with operating variables. Air (combustor) and steam (gasifier) were used as fluidizing agents and the effects of reaction temperature (750–900°C), steam/biomass ratio (0.1–0.7) and bed materials (silica sand, limestone) are determined. Product gas having a medium heating value (about 12 MJ/m<sup>3</sup>) could be obtained from overall operating conditions and product gas dilution by nitrogen was not observed. The total product gas yield was 0.8–1.1m<sup>3</sup>/kg-biomass. Product gas compositions of H<sub>2</sub> and CO using silica sand were 38–52% and 22–26%, respectively. When limestone was fed, over 60% of H<sub>2</sub> could be obtained but CO and CO<sub>2</sub> was decreased.