

54b Production of Clean Synthetic Gas from Biomass Using a Downdraft Gasifier

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Waste biomass can be considered as a potential feedstock source for sustainable energy production. Biomass can be converted to chemicals either by thermochemical or biological processes. Gasification is one of the thermochemical methods of converting biomass to synthetic gas (CO and H₂). The synthetic gas produced can be converted to different chemicals like ethanol, acetic acid etc., chemically or by using biological catalysts. Biomax downdraft gasifier from community Power Corporation was used in this study. The use of hard wood, soft wood, and switch grass as biomass sources were evaluated. The effect of different operating parameters on the production and quality of synthetic gas was studied. Characterization of tars was done and the amount of tars produced during gasification was measured. Since, the biological conversion of synthetic gas requires minimal tar content, a catalytic converter/destroyer was used to reduce the amount of tars generated during gasification. The extent of tar destruction using this catalytic converter was monitored, the results of which will be presented.