INFLUENCE OF CO2 INJECTION ON BIOMASS UPDRAFT GASIFICATION PROCESS

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ABSTRACT

The utilization of fossil fuels has enabled large-scale industrial development and largely supplanted water-driven mills, as well as the combustion of wood or peat for heat. The burning of fossil fuels by humans is the largest source of emissions of carbon dioxide, which is one of the greenhouse gases that allows radiative forcing and contributes to global warming.

This study focuses on to performance analysis of updraft gasifier with the injection of CO_2 as gasifying agent. During the study CO_2 was fed in to updraft gasifier in different feed ratios and producer gas composition was analyzed.

Rubber wood chips were used as the feed stock of gasifier and testings were carried out in input fractions of CO_2 to analyze its impact of CO yield.

Keywords: Updraft gasifier, biomass, equivalence ratio, Carbon dioxide to air ratio,

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ACRONYMS

HHV: Higher heating value

HHV_f : Higher Heating value of fuel

LHV: Lower heating value

FCR: Fuel Consumption rate

VM: Volatile Matters

FC: Fixed Carbon

ER: Equivalence ratio

SGR: Specific Gasification rate

A/G: Air to gas ratio

G/F: Gas to fuel ratio

GHG: Green House Gases