

## PRODUCTION OF A PRODUCER GAS FROM WOODY BIOMASS USING CO<sub>2</sub> CAPTURING CHEMICALS

R.Ezhumalai<sup>1</sup>, Shivaprasad A<sup>2</sup> & A.R.Phani<sup>3</sup>

<sup>1</sup>Forest Product Division, Forest Research Institute, Dehradun, Uttarakhand, India

<sup>2,3</sup>Research Scholar, Department of Chemical Engineering R V College of Engineering, Bangalore, India

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### ABSTRACT

*In the past 30 years, the increasing global temperature is one of the greatest concerns of mankind. The use of biomass resources is one of the important components to reduce global warming. In many cases, where the petroleum prices are high or supplies are limited or there is a problem of global warming, the biomass gasification can provide an economically and environmentally feasible system, if the desired biomass feedstock is available easily. In 2013, US reported that of the total emissions, 98% of CO<sub>2</sub> emissions are of energy-related and about 40 % due to electricity generation. Since the fossil fuels which are non-renewable and polluting the environment, wood waste biomass is used, which is renewable and environmental friendly.*

*In present study, wood biomass of approximately size of 5 cms was used as a raw material and different chemicals were used to absorb CO<sub>2</sub>. In this present work, 1 kW gasifier was used, where the production ratio of CO to CO<sub>2</sub> is 5:6. Various chemicals namely dolomite, olefin sand, manganese, calcium carbonate etc. were used to absorb CO<sub>2</sub>, which in turn increases the quality of CO. By varying the quantity chemicals (15, 50, 100-600 g), the absorption of CO<sub>2</sub> was studied.*

*It was observed that by using 500g of calcium carbonate, the ratio of CO to CO<sub>2</sub> was found to be 3:2. The CO production rate was increased to 41.1%. The production of CO<sub>2</sub> was reduced to 21.1%. And also higher amount of hydrogen was produced i.e upto 21.5 %.*

**KEYWORDS:** Gasification, Producer Gas, Chemicals, CO<sub>2</sub> Absorption