

EXPERIMENTAL STUDY ON INTEGRATED BIOMASS PYROLYSIS AND GASIFICATION PROCESS FROM TEAK WOOD WASTE

by Mujiyono, Didik Nurhadiyanto, Henny Pratiwi

ABSTRACT

This study aims to investigate the influence of teak wood waste column height on integrated biomass pyrolysis and gasification process. A design of new conversion process is developed in this study. Teak wood waste was compacted into a gasifier then a hollow like tube gap is inserted in the center of gasifier surrounded by char. Oxygen is passed in the inlet and was flown through the gap. When a flame was initiated, the gap was burned and temperature inside the gap was increased caused the pyrolysis of compressed teak wood happen. There were three different char column height investigated in this study, which are 50, 58 and 67 cm. Compactness of feedstock is set at 0.26 kg/m³. Water boiling test was conducted in order to find the fastest boiling time among the height variation. It is found that the higher the column, the faster the boiling time. Higher char column caused more gas produced due its higher feedstock mass. Furthermore, the gap between each teak wood chip in higher column has increased its ability to release the producer gas.

Kata Kunci: *biomass, pyrolysis, gasification, teak wood, water boiling test*