

ABSTRACT

In general, people use LPG (Liquified Petroleum Gas) as fuel for cooking because it is more economical and is widely sold in the community. However, LPG fuel is a non-renewable fuel because it is a fossil fuel or comes from a natural process of decay of organisms that died hundreds of millions of years ago. This causes people to not always depend on LPG as fuel. An alternative solution that can be used is the use of renewable biomass fuels that can be converted using biomass gasification. The technology that supports the use of biomass fuel is a gasification stove that can be applied in rural and urban areas. The gasification stove used in this research is Downdraft Gasifier with a stove diameter of 40 cm and a reactor height of 60 cm. given variations in the height of the gasifier, namely 20cm, 25cm, 30cm, 35cm, 40cm. The variable for the Downdraft Gasifier test is the variation in height given to the gasifier. In addition to these variables, testing the Downdraft Gasifier furnace was carried out using the Indonesian National Standard (SNI) 7926: 2013 method. From the results of the study, it was found that the height of the gasifier had an effect on the specific rate of gasification. The higher the gasifier used, the greater the specific rate. The greatest thermal efficiency obtained is 15.75% on a gasifier with a height of 30 cm using an air velocity of 3.8 m / s

Key words: biomassa; gasifikasi; *Downdraft Gasifier*; Standar Nasional Indonesia (SNI).