SUMMARY

Dedy Pribadi Siagian, Department of Mechanical Engineering, Faculty of Engineering, Universitas Brawijaya, January 2018, The Influence of Moisture Content on The Velocity of Laminar Fire with Methane Gas Fuel. Adviser Lecturer: Agung Sugeng Widodo, Francisca Gayuh Utami Dewi.

Nowadays the need for fuel is increasing, because the fuel will be more difficult to find or rare. Limitations of non-renewable fuels are a problem as these fuels can not be separated from our lives, if the government explores sustainably it will lead to a bigger problem of fuel crisis. Therefore, many scientific research are looking for solutions to the fuel crisis problem by finding alternative fuels as renewable energy whose availability in nature is still sufficient. Methane can be used as an alternative fuel because its supply is still sufficient, environmentally friendly and still easily obtainable in the community The fire rate of laminer is an important parameter in the burning problem because it contains basic information about reactivity, diffusivity, and exothermicity.

The fire rate of laminer is also affected by water vapor. Water vapor is a gas that comes from the heating process of water (H2O). In addition, the moisture content of the environment can affect combustion. the greater the moisture content in an area the heat generated by combustion will be higher. Therefore it is necessary to conduct a research to determine the effect of steam to the velocity of methane laminer fire. In this study using Bunsen burner due to the making of the tool is also relatively easier. The independent variable in this research is the Equivalence Value of reactant equal to: 0,762; 0.802; 0.923; 1.05; 1,128; 1.385 and moisture content of: 7,35%; 13,70%; 16,56%; 19,23%; 21,74%; 24,10%; 28,41%.

The results showed that the velocity of laminer fire (SL) decreased with increasing moisture content, besides the higher the equivalence ratio then the laminer fire rate (SL) decreased, the fire height decreased, while the flame temperature increased until the equivalence ratio was close to 1 then back down as the equivalence ratio increases.

Keywords: *Bunsen burner*, Characteristics of Flame, Equivalence Ratio, Methane, Moisture content