

## SUMMARY

**Christoffel Silaban**, *Mechanical Engineering, Engginer Faculty, Brawijaya University, January 2018, Flame Characteristic in Bunsen Burner With Heated Ring Diameter Variations, Supervisor: Agung Sugeng Widodo and Fikrul Akbar Alamsyah.*

*Every year fuel needs continue to increase, it will affect the availability of the fuel. Therefore the use of the fuel must be optimized, and research on combustion needs to be done. In this case the premixed combustion of methane gas using bunsen burner with heated diameter ring variation. Bunsen burner is a simple premixed combustion tool that can produce a flame, which in the principle uses the regulation of airflow and fuel gas continuously. But nowadays there is no standardization on bunsen burner in the form or dimension. To determine the effect of bunsen burner temperature on the characteristics of laminar flame then heated the ring, then attached to lid of bunsen with the outer ring diameter variation. Heating process in the ring using 5A stepdown transformer. The heating of the ring is based on the theory of heat transfer to know the effect of the cross section of the ring on the temperature of the fire.*

*In this research used bunsen burner with 10 mm inner diameter and outer diameter 12 mm. The fuel used is methane, where methane is the most fuel source in nature. In this study used the equivalence ratio of 1.33; 1.18; 1.07; 0.97; 0.89 and 0.82. Variations of outter ring diameter were 25 mm, 30 mm, 35 mm, 40 mm and 45 mm. Temperature of the heated ring is 155°C.*

*The results show that the fire temperature increases if the equivalence ratio is close to 1 and the fire temperature decreases as the heated diameter of the ring increases. Laminar fire height will decrease as if the equivalence ratio is close to 1 and the height of fire will increase as the heating value of the heated ring is increased. The speed of laminar fire (SL) increases as the equivalence ratio decreases and the laminar fire rate decreases as the heated ring diameter increases.*

**Keywords:** *Bunsen burner, Premixed Combustion, Methane, Heated Ring, Characteristic Laminar Flame*