SUMMARY

Arif Rafi'i Soesilo, *Department of Mechanical Engineering, Faculty of Engineering Brawijaya University, Role of Glycerol in Premixed Burning Velocity of Jathropha Oil* : I.N.G Wardana dan Slamet Wahyudi.

Nowadays due to gradual depletion of world oil reserves and the impact of environmental pollution from the increased exhaust emissions, there is an urgent need to develop alternative energy sources, such as biodiesel fuel. Vegetable oil is a promising alternative because it has some advantages, it is a renewable, environmentally friendly and manufactured easily in rural areas, where there is an acute need for modern forms of energy. One of the oils including vegetable oil is castor oil. Jatropha is very easy to grow in a variety of soil conditions the selection of castor oil as a source of alternative energy for the distance does not affect the food sector and is also not used for animal feed because of their toxic, environmental considerations to reduce pollution, and does not depend on fossil fuels. Glycerol is a viscous liquid that has no color and high boilers. But the content of glycerol in castor oil is causing ignition requires heating large enough that it tends to slow the spread of fire burning can be done by several methods and one method is the method of premix. Premix combustion method is a method in which fuel and oxygen are mixed with a mechanic mixing before going burnt.

Methods in this study using real experimental research methods by observing directly in order to obtain data for the causal empirical data that are directly applied to the object to be examined. Free variable used is a type of castor oil which is crude castor oil and non-glycerol castor oil and amount of air entering the tube premixed that will be associated with equivalence ratio.

In this research conducted glycerol obtained from the role glycerol of premixed burning on castor oil is hygroscopic weighing on the combustion reaction so as to make the combustion velocity at distances of crude oil has a smaller value than the non-glycerol castor oil. But glycerol is stabilizer in burning because it can serve as a hot energy accumulator so flammability of crude oil a greater distance is indicated by the number of points obtained equivalence ratio. In crude jatropha oil obtained equivalence ratio, 0.682; 0.768; 0,877; 1.023; 1.228; 1.535; 2,047; 3,071 and the non-glycerol 1.159 castor oil; 1,352; 1.623; 2.028; 2,705; 4.057.

Key Word: *premixed, minyak jarak mentah, minyak jarak non gliserol, kecepatan pembakaran laminer*.