ANALYSIS OF THE EFFECT OF VARIATIONS FLOW RATE USING FLUID VIRGIN COCONUT OIL (VCO) ON PERFORMANCE IMMERSION COOLING IN CENTRAL PROCESSING UNIT (CPU)

Dr. Bayu Rudianto, ST,. M.Si. (chief counselor)

Grendis Pria Utama
Study Program of Renewable Energy Engineering
Department of Engineering
Politeknik Negeri Jember
grendis2210@gmail.com

ABSTRACT

Data center relatively has a high energy requirement with 40% used by data center cooling system. Data center cooling systems mostly use conventional fan cooling systems. Radiation heat transfer occurs in conventional cooling systems so that the heat absorption rate is not optimal. The cooling system used to solve the problem is using immersion cooling cooling system. The principle works by soaking all computer components in dielectric coolant so that the heat generated by the components can be directly transferred to the coolant. Virgin Coconut Oil is used as a fluid in immersion cooling system. In its testing immersion cooling varied with fluid flow rate of 2 lpm, 4 lpm and 6 lpm. As well as the variation in the rotation of the radiator fan. The results of the test showed that the decrease in CPU temperature was more significant than conventional cooling systems. The maximum working temperature in conventional cooling system is 71.2°C while the maximum temperature can be achieved with immersion cooling cooling system with the best variation of 42.8 ºC.

***Keywords**: Immersion Cooling, Flow Rate, Virgin Coconut Oil*