

ABSTRACT

Indonesia which is on the equator where it gets solar energy throughout the year is very suitable for utilizing solar energy. Solar energy can be used as an energy source using flat plate type solar thermal collector as a water heater. In this study evaporator flat type is used as fluid canal and absorber plate. Tests are carried out at various intensity, use of glass, and without glass. Tests are carried out indoors using a radiation simulator instead of the sun with temperature water starts from 25,3°C to 26,3°C. From this study obtained that using an evaporator the efficiency and the final temperature produced by the thermal collector is higher than thermal collector that using copper pipe. The highest efficiency value at uses glass, for the evaporator thermal collector the value is around 70,08% with the final water temperature value is 37.63°C, while the copper pipe collector efficiency value is around 59,98% with the final water temperature value is 36,23°C.

Keywords: Solar Thermal Collector, efficiency, evaporator, radiation simulator