

ABSTRACT

Indonesia is a tropical country with great potential for solar energy. A Solar Water Heater (SWH) uses the potency for both household and commercial needs. This study uses paraffin for Thermal Energy Storage as a Phase Change Material then added to the SWH. SWH tested on several variations in the intensity and conditions with and without PCM. The test had done in a closed room using a solar radiation simulator as a substitute for the sun with an initial water temperature of 24°C. This study showed that the water temperature storage time from 37°C to 35°C in a system with PCM was higher than without using the PCM. The time gained in the system using PCM was 58 minutes with the highest average efficiency value of 29.15%, when the system without PCM usage was 50 minutes with the highest average efficiency value of 51.97%.

Keywords: *Solar Water Heater, Thermal Energy Storage, Phase Change Material, Paraffin.*