



<b>Thesis Title</b>	Performance Analysis of Combined Adsorber – Thermosyphon System for Cooling
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### ABSTRACT

Adsorption cooling system is an alternative cooling system that is environmental friendly. This research is the performance study of adsorptive on cooling system using Closed Loop Oscillating Heat Pipe (CLOHP). The experimental apparatus is composed of adsorber, condenser and evaporator in vertical alignment. The adsorbent/adsorbate working pair is activated carbon (AC) and methanol. The CLOHP, having 2-mm of copper tube diameter with 30 up-and-down turns and 150-cm height, is used for cooling the adsorber. The cooling performance was compared with the case of using only cooling water and the case of using CLOHP solely. In addition, influence of two variables; desorption temperature of adsorber (70, 80, 90 °C) and condenser temperature (5, 10, 15 °C) were carried out.

The experimental results showed that the use of CLOHP and cooling water simultaneously could reduce time required for temperature reduction of adsorber to only 26 minutes, or lower than used only water case about 42%. Regarding to all experimental conditions, it was found that the lowest evaporator temperature was 16 °C at the maximum adsorber temperature about 90 °C as well as condenser temperature of 5 °C. The maximum obtained COP was 0.45. In comparison the system performance from this research with the other research works, it was considerably high and could be comparable. Hence, there is potential to develop the system into the competitive level as well as the practical applications.