

Abstract

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Comparative Study between a Thermodynamic Model and the Modular Computer Simulation (ABSIM) for Single Effect Vapor Absorption System

Thermally driven absorption system is noticed to be an alternative to the compression system which causes environmental problems such as global warming and ozone layer depletion. However, the performance of the absorption system is low compared to the compression system so it should be enhanced to be an effective solution. The main objective of this paper is to develop a thermodynamic model to visualize the performance of the absorption system through studying the effect of different operational parameters on the COP. The analysis also investigates the effect of heat exchanger design parameters such as effectiveness and NTU on the COP. Also a comparison is conducted between the results of the model with the results obtained from the modular computer simulation (ABSIM Program). The results showed a good agreement between the two models. It was also found that the heat exchanger effectiveness gives the maximum difference in the COP (about 8.9%)