

Abstract

Aly I Shehata

Effect of Stirrer and Surfactants on Absorber Performance in Vapor Absorption Systems

The absorber is a major component in absorption refrigeration systems. The absorber has complicated heat and mass transfer mechanism which greatly affects the overall system performance. The rate of vapour absorption in the absorber and the mass transfer process play a key role in the cooling capacity and hence the coefficient of performance of the system. In this study, an experimental test rig was especially designed and developed in this work in order to study the effect of different modes: stirrer and different additives [1-Octanol, 2-Ethyl-1-Hexanol and Propanol] on the performance of the absorber. The results showed that the use of stirrer has a great effect on the absorption rate. Moreover, among the used surfactants, the 1-octanol has the most significant effect on both mass transfer coefficient and the absorption rate by 23% and 91% respectively.