Investigation on the effects of heat capacity on the theoretical analysis of single slope passive solar still

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ABSTRACT

Surfaces used for evaporation and condensation play a vital role in the performance of single slope passive solar still. To reach the optimum design, many experimental and numerical studies have been done on different configurations of solar stills by examining the effect of climatic, operational and design parameters of solar still components on its performance. Majority of those investigations have not taken into account the heat capacity of the basin and glass cover for simplification of mathematical model. The heat transfer and thermal losses from the components of a solar still are influenced by the thermal properties like heat capacity, absorptance and thermal conductivity of its components. In this observation, an attempt has been made to develop a mathematical model, which is used to find the effect of heat capacity of the basin and glass cover on the performance and exergy destruction of single slope passive solar still.

Keywords: Passive solar still; Heat capacity; Mathematical model; Exergy destruction

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