

A Performance Analysis Study of an Active Solar Still Integrating Fin at the Basin Plate

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Abstract : Water is one of the most important and vulnerable natural resources due to human activities and climate change. Water-level continues declining year after year and it is primarily caused by sustained, extensive, and traditional usage methods. Improving water utilization becomes an urgent issue in order satisfy the increasing population needs. Desalination of seawater or brackish water could help in increasing water potential. However, a cost-effective desalination process is required. The most appropriate method for performing this desalination is solar-driven distillation, given its simplicity, low cost and especially the availability of the solar energy source. The main objective of this paper is to demonstrate the influence of coupling integrated basin plate by fins with preheating by solar collector on the performance of solar still. The energy balance equations for the various elements of the solar still are introduced. A numerical example is used to show the efficiency of the proposed solution.

Keywords : active solar still, desalination, fins, solar collector

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