

Enhancing the heat transfer of triangular pyramid solar still using phase change material as storage material

ABSTRACT

This paper presents the method of improvement of enhancing the performance of triangular pyramid solar still with and without latent heat energy storage. For comparing the productivity of solar still with and without LHTESS a solar still is designed, fabricated. Experiments are conducted in hot and humid climate of Chennai, India. Paraffin wax is used as LHTESS due to its feasible general and economic properties. The hourly productivity is slightly higher in case of solar still without LHTESS during sunny days. There is an increase of about 35% in production of fresh water with LHTESS than that of solar still without LHTESS. Also it was found that during the off shine period the fresh water produced from the still is higher. The solar still with and without LHTESS were found to be 4.5 L/m²day and 3.5 L/m²day.

Keyword: Enhancement; Phase change material; Hourly variation; Efficiency