



Energy and exergy analysis of single slope passive solar still: an experimental investigation

Sivakumar Vaithilingam^{a,*}, Ganapathy Sundaram Esakkimuthu^b

^aDepartment of Mechanical Engineering, R.M.K. Engineering College, Chennai 601206, India, email: vsk.mech@rmkec.ac.in

^bDepartment of Mechanical Engineering, Velammal Engineering College, Chennai 600066, India, email: ganapathy_sundar@yahoo.com

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ABSTRACT

Exergy analysis is a powerful indicative tool for thermal systems performance evaluation. Now a day, there has been an increasing interest in using exergy as a prospective tool for analysis. In this paper, an attempt is made to perform energy and exergy analysis of single slope passive solar still of size of 1×0.5 m with the glass thickness 5 mm and slope 13° . To examine the effects of water depth for same total daily solar intensity on energy and exergy efficiency, experiments were carried out at Chennai ($13^\circ 5' 2''$ N, $80^\circ 16' 12''$ E), Tamil Nadu, India. The exergy destruction of different components of solar still for various water depths was also determined. The study found that the highest exergy destruction is takes place in basin liner as compared with the other components for all the water depths.

Keywords: Passive solar still; Water depth; Energy efficiency; Exergy efficiency; Exergy destruction

*Corresponding author.