

Performance Evaluation of Single Basin Solar Still

Authors : Prem Singh, Jagdeep Singh

Abstract : In an attempt to investigate the performance of single basin solar still for climate conditions of Ludhiana a single basin solar still was designed, fabricated and tested. The energy balance equations for various parts of the still are solved by Gauss-Seidel iteration method. Computer model was made and experimentally validated. The validated computer model was used to estimate the annual distillation yield and performance ratio of the still for Ludhiana. The Theoretical and experimental distillation yield were 4318.79 ml and 3850 ml, respectively for the typical day. The predicted distillation yield was 12.5% higher than the experimental yield. The annual distillation yield per square meter aperture area and annual performance ratio for single basin solar still is 1095 liters and 0.43 liters, respectively. The payback period for micro-stepped solar still is 2.5 years.

Keywords : solar distillation, solar still, single basin, still

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