

A Solar Distiller Performance of a Thin Layer Flow of Brine

ABSTRACT

A thin layer flow of brine solar distiller model with an inclined movable black solar steel collector was designed and constructed to desalinate the sea-water. The range of distiller productivity was about 5 to 8 L/m².day, at the operation conditions of (solar radiation of 552.1 to 591.2 W/m², ambient temperature of 25 to 31.8 °C, temperature difference between the solar collector & glass cover of 39 to 52 °C, brine flow rate of 4 to 10 L/hr and finally, solar collector angle of 15° to 45° to the horizontal). Step-wise regression analysis was applied to get the best set of the statistical model on distilled water productivity. The determination of correlation of the final model was 0.97. Also, the operational efficiency was calculated, which ranged from 53 to 63%.

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