

An Experimental Study on Evacuated Tube Solar Collector for Steam Generation in India

Authors : Avadhesh Yadav, Anunaya Saraswat

Abstract : An evacuated tube solar collector is experimentally studied for steam generation. When the solar radiation falls on evacuated tubes, this energy is absorbed by the tubes and transferred to water with natural conduction and convection. A natural circulation of water occurs due to the inclination in tubes and header. In this experimental study, the efficiency of collector has been calculated. The result shows that the collector attains the maximum efficiency of 46.26% during 14:00 to 15:00h. Steam has been generated for two hours from 13:30 to 15:30 h on a winter day. Maximum solar intensity and maximum ambient temperatures are 795W/m^2 and 19°C respectively on this day.

Keywords : evacuated tube, solar collector, hot water, steam generation

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