Abstract

In this work different absorber tubes like polished copper tube, unpolished copper tube, Ni-Al coated copper tube, Ni-Cr coated copper tube are used separately in solar parabolic trough collector for conducting performance study with heat transfer fluids of water and salt water. The tracking system is used for the solar rays tracking to get a better performance of the solar parabolic trough collector.

The four absorber tubes and two heat transfer fluids are used as factors to design of experiment of solar parabolic trough collector. Ni-Al and Ni-Cr coatings are done on copper tube by using thermal spray coating technique. The experiments are conducted according to DOE on the solar parabolic trough collector. The temperature and discharge of working fluid are measured. These measured values are analysed and the optimum value of factors are identified using the WASPAS method.