

Performance Analysis of Solar Power Desalination Plant with Addition of Absorber Variation

Mufidhatu Umil Khanifah
Renewable Energy Engineering Program Study
Engineering Department

ABSTRACT

Availability of clean water source is a major problem in the coastal communities. One of way to handle the clean water crisis is to convert seas water into fresh water to ready consume by distillation process with solar desalination device. Aims of this research is to analyze the performance of solar desalination device which has been added with the absorber so it can improve efficiency of the tool and also increase the production of fresh water. Desalination is separation process used to reduce the dissolved salt content of brine to a certain level so the water can be used. When desalination takes process, heat conduction, convection and radiation occur. Solar desalination devices were tested in the state of two different absorber, sand absorber and black plate absorber and compared with non absorber. The result showed that efficiency of the appliance non absorber is 4.7%, efficiency of the appliance with sand absorber is 8.7%, and efficiency of the appliance with the black plate absorber is 13.4%. Amount of fresh water produced from desalination equipment without absorber is 0.1135 liter, with sand absorber is 0,2125 liter, and with black plate absorber is 0,326 liter.

Keywords: absorber, black plate, desalination, sand, sea water, solar power desalination.