

ABSTRACT

EFFECT OF REFLECTOR SIZE ON THE PERFORMANCE OF PARABOLIC SOLAR COOKER

BY

AFRIS RAMADHI

One solution that glimpsed by a group of researchers to look for alternative solutions to overcome the energy crisis that occurred in Indonesia is the utilization of solar energy. Utilization of this solar energy can be conducted thermally or through electrical energy. Thermal utilization can be conducted directly by letting the object to the radiation of the Sun, or using equipment which includes solar collectors and concentrators. To take advantage of the sun's energy for cooking solar energy cooker can be used. The purpose of this study is to determine the effect of broad on the performance of solar collector parabolic type to cook water. The study was conducted by using 3 different size of solar radiation, with initial mass of 2 kg of water. Parameters to be analyzed mass of water, changes of temperature, solar radiation intensity and the including change of boiling time. Solar radiation was measured using lux meter which calibrated with actinograph. The results showed that collector size affected the performance of solar cooker, the large the size of collector the higher temperature generated, from the initial temperature of 28°C with a mass of 2 kg of water at 6 m² of collector size became 94°C, at 4 m² of collector size became 80° C, at 2 m² of collector size became 70°C. Thermal efficiency of the this solar cooker at 2 m² of collector size was

13.89%, at 4 m² of collector size was 7.33%, and at 6 m² of collector size was 7.81%.

Keywords :Solar cooker, parabolic collector, collector size, thermal efficiency