

ABSTRACT

In this study utilizing solar thermal radiation because the object being reviewed is heat, so that the resulting temperature is maximal. However, direct use of sunlight is not possible, because the weather changes are very fluctuating, therefore, in this study a solar radiation simulator was made as a direct substitute for solar radiation. This Sun oven is made of stainless steel, styrofoam, aluminum and glass. Data taken in the form of water temperature, temperature in the oven, ambient temperature, temperature of the glass, and intensity with 4 different oven treatments. This study aims to utilize solar thermal radiation as a source of heat energy by analyzing the effect of intensity on water temperature and temperature in the oven and the value of efficiency in water. The greater the intensity given, the higher the water temperature and temperature in the oven. Ovens that use glass and styrofoam produce a higher water temperature and oven temperature than the other three oven treatments, because the use of glass will trap the temperature in the oven and the use of styrofoam will hold the heat in the oven. The value of efficiency in maximum water is found in ovens that use glass and styrofoam. Water efficiency in the oven using glass and styrofoam at an intensity of 137 W/m² at 31.87% and at an intensity of 880 W/m² at 17.04%.

Keywords: Oven, solar radiation simulator, temperature, intensity, efficiency