

RESEARCH ARTICLE | MAY 08 2023

Increasing the efficiency of solar energy water distillation using the capillarity method

Handita Dwi Prasetya; Mercurius Bramastya Nico Siwa; Rusdi Sambada ✉

AIP Conference Proceedings 2706, 020076 (2023)

<https://doi.org/10.1063/5.0120341>

Increasing The Efficiency of Solar Energy Water Distillation Using the Capillarity Method

Handita Dwi Prasetya¹, Mercurius Bramastya Nico Siwa² and Rusdi Sambada^{3, a)}

¹*Department of Mechanical Engineering, Sanata Dharma University, Indonesia*

^{a)} *Corresponding author: sambada@usd.ac.id*

Abstract. Drinking water is an important need for human daily life. However, currently there is still a shortage of drinking water, especially in remote areas. The tilted type of solar energy water distillation is one way to get drinking water from contaminated water. The tilted type of water distillation generally still has low efficiency. The purpose of this study is to increase the efficiency of the tilting type solar energy distillation by minimizing heat losses that occur using the inflow of water using the capillarity method. The research was conducted in a laboratory, using a heating lamp as a solar energy simulator. The distillation model used has an area of 0.435 m². 2 variations of the absorber are used, namely bamboo paper and wood paper. The thickness of the absorber is differentiated in 3 variations. The best result is 0,597 liter/(m².hour) of distilled water that was obtained by using a wooden paper absorber This research can be useful for remote areas that experience a scarcity of clean water suitable for consumption.