

## Accepted Manuscript

Application of nanofluids in thermosyphons: A review

Mahdi Ramezanizadeh, Mohammad Alhuyi Nazari, Mohammad Hossein Ahmadi, Emin Açikkalp



PII: S0167-7322(18)33473-1  
DOI: [doi:10.1016/j.molliq.2018.09.101](https://doi.org/10.1016/j.molliq.2018.09.101)  
Reference: MOLLIQ 9707  
To appear in: *Journal of Molecular Liquids*  
Received date: 6 July 2018  
Revised date: 25 August 2018  
Accepted date: 20 September 2018

Please cite this article as: Mahdi Ramezanizadeh, Mohammad Alhuyi Nazari, Mohammad Hossein Ahmadi, Emin Açikkalp , Application of nanofluids in thermosyphons: A review. Molliq (2018), doi:[10.1016/j.molliq.2018.09.101](https://doi.org/10.1016/j.molliq.2018.09.101)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Application of Nanofluids in Thermosyphons: a Review

Mahdi Ramezanizadeh<sup>1</sup>, Mohammad Alhuyi Nazari<sup>1</sup>, Mohammad Hossein Ahmadi<sup>2\*</sup>, Emin Açıkkalp<sup>3</sup>

<sup>1</sup>*Aerospace Engineering Department, Shahid Sattari Aeronautical University of Science and Technology, Tehran, Iran*

<sup>2</sup>*Faculty of Mechanical of engineering, Shahrood University of Technology, Shahrood, Iran*

<sup>3</sup>*Department of Mechanical Engineering, Engineering Faculty, Bilecik S.E. University, Bilecik, Turkey*

Email address of corresponding authors: [ramezanizadeh@ssau.ac.ir](mailto:ramezanizadeh@ssau.ac.ir) (Mahdi Ramezanizadeh), [mohammadhosein.ahmadi@gmail.com](mailto:mohammadhosein.ahmadi@gmail.com), [mhosein.ahmadi@shahroodut.ac.ir](mailto:mhosein.ahmadi@shahroodut.ac.ir) (Mohammad Hossein Ahmadi)

## Abstract

Nanofluids are widely used in recent years in order to enhance heat transfer in several mediums. Thermal performance of thermosyphons can be improved by employment of nanofluids. In this study, a comprehensive review is conducted on the studies focused on the thermosyphons filled with nanofluids. In addition, thermosyphons working with nanofluids in various applications are reviewed here. Based on the literature review, nanofluids have potential to significantly improve thermal performance of thermosyphons. In addition, it is concluded that thermal performance of nanofluidic thermosyphons depends on type of nanoparticles, base fluid, concentration and etc. Most of the reviewed studies have found that there is an optimum concentration for the nanofluids used in thermosyphons. In addition, the efficiency of the devices use nanofluidic thermosyphons are improved due to increased effective thermal conductivity of thermosyphons charged with nanofluids.

**Keywords:** Thermosyphon, Nanofluid, Renewable Energy, Thermal Resistance

## 1. Introduction

Heat pipes are heat transfer devices which are widely used due to their higher effective thermal conductivity in comparison with conductive metals such as copper and aluminium [1,2]. There are several kinds of heat pipes such as pulsating heat pipe, rotating heat pipe, wick heat pipe and thermosyphon [3–7]. Heat pipes contains a fluid which evaporates by receiving heat at evaporator and the vapor converts into liquid by heat dissipation in condenser [8,9]. The types of heat pipes are categorized based on the

Download English Version:

<https://daneshyari.com/en/article/11026896>

Download Persian Version:

<https://daneshyari.com/article/11026896>

[Daneshyari.com](https://daneshyari.com)