

Experimental Investigation of the Thermal Performance of Fe₂O₃ under Magnetic Field in an Oscillating Heat Pipe

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Abstract : This paper presents an experimental investigation regarding the use of Fe₂O₃ nano particles added to kerosene as a working fluid, under magnetic field. The experiment was made on Oscillating Heat Pipe (OHP). The experiment was performed in order to measure the temperature distribution and compare the heat transfer rate of the oscillating heat pipe with and without magnetic Field. Results showed that the addition of Fe₂O₃ nano particles under magnetic field improved thermal performance of OHP, compare with non-magnetic field. Furthermore applying a magnetic field enhance the heat transfer characteristic of Fe₂O₃ in both start up and steady state conditions. This paper presents an experimental investigation regarding the use of Fe₂O₃ nano particles added to kerosene as a working fluid, under magnetic field. The experiment was made on Oscillating Heat Pipe (OHP). The experiment was performed in order to measure the temperature distribution and compare the heat transfer rate of the oscillating heat pipe with and without magnetic Field. Results showed that the addition of Fe₂O₃ nano particles under magnetic field improved thermal performance of OHP, compare with non-magnetic field. Furthermore applying a magnetic field enhance the heat transfer characteristic of Fe₂O₃ in both start up and steady state conditions.

Keywords : experimental, oscillating heat pipe, heat transfer, magnetic field

Conference Title : ICTHT 2014 : International Conference on Thermophysics and Heat Transfer

Conference Location : London, United Kingdom

Conference Dates : November 28-29, 2014