

## Experimental Investigation of the Thermal Performance of Fe<sub>2</sub>O<sub>3</sub> under Magnetic Field in an Oscillating Heat Pipe

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**Abstract :** This paper presents an experimental investigation regarding the use of Fe<sub>2</sub>O<sub>3</sub> 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 Fe<sub>2</sub>O<sub>3</sub> 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 Fe<sub>2</sub>O<sub>3</sub> in both start up and steady state conditions. This paper presents an experimental investigation regarding the use of Fe<sub>2</sub>O<sub>3</sub> 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 Fe<sub>2</sub>O<sub>3</sub> 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 Fe<sub>2</sub>O<sub>3</sub> in both start up and steady state conditions.

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

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