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INFLUENCE OF NON-THERMALPHYSICAL PROPERTY TO PHP

Abstract

Pulsating Heat Pipe is considered to be a low cost and high efficiency heat transfer device[1,4]. Because of these two advantages, the heat dissipation of the electronic components can be solved very well and the application prospect of the Pulsating Heat Pipe is very deep and wide.

The operational mechanism and heat transfer law of PHP is very complex, nowadays, the understanding of PHP is still staying on the easy level, so the further experimental study of Pulsating Heat Pipe seems very important. The influence elements on the performance of PHP are too many, the past studies of PHP are concentrated to the Heat Powerinclination anglediameterfilling ratioworking fluid and so on, but researchers have never done experimental study about physical properties which are influencing the performance of Pulsating Heat Pipe, besides this, they have never used hybrid to be the working fluid of PHP. This Paper is focusing on this area, and through several time experiments, we choose water and methanol to be the hybrid working fluid at last. Then, after accomplishing lots of experiments by this hybrid working fluid, we use the differrences and regularities of its physical property to study the influence of surface tensionviscosity and specific heat capacity on the thermal risistance of PHP deeply, and we give a relatively accurate experimental correlation.

Keywords: Non-thermalphysical property; Pulsating Heat Pipe