

||||| 小特集：沸騰・二相流 |||||
(研究紹介)

Self-Rewetting 流体を用いた冷却技術

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Thermal Management with Self-Rewetting Fluids

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Abstract

The present review article reports a series of works the present author has been conducted and some recent topics on the so-called “self-rewetting” fluids. First of all, extraordinary surface tension behavior of high-carbon alcohol aqueous solutions is introduced, and then the potential of the self-rewetting fluids for thermal management applications is emphasized. Secondly, experimental results for wicked heat pipes and pool boiling characteristics at normal gravity condition and some experimental results for wickless heat pipe in reduced gravity conditions are given, and ultra-light weight flexible, inflatable, deployable space radiator concept is presented. Finally, latest topics concerning self-rewetting fluids, such as nano-self-rewetting fluids and micro-channel flow boiling with self-rewetting fluids, are briefly introduced.