

THERMAL CONDUCTIVITY AND HEAT CAPACITY OF CNT IONANOFLUIDS

C.A. Nieto de Castro, S.M. Sohel Murshed, M.J.V. Lourenço, F.J.V. Santos and M.L. Matos
Lopes and J.M.P. França
Centre for Molecular Sciences and Materials
Department of Chemistry and Biochemistry
Faculty of Sciences of the University of Lisbon
Campo Grande, 1749-016 Lisbon, Portugal

SUMMARY: Ionanofluids represent a new and innovative class of heat transfer fluids which possess fascinating thermophysical properties. They are designable and fine-tunable through their base ionic liquids. Experimental results on effective thermal conductivity and heat capacity of carbon nanotubes (CNT) ionanofluids as a function of a temperature and concentration of multi-wall carbon nanotubes are presented in this paper. By comparing results of these thermophysical properties ionanofluids are found to exhibit superior thermal conductivity and heat capacity as compared to those of their base ionic liquids. Present results together with findings from our pioneering research demonstrate that ionanofluids show great promises to be used as advanced heat transfer fluids in numerous cooling technologies.