عنوان مقاله:

An Experimental Study on Thermophysical Properties of Multiwalled Carbon Nanotubes

محل انتشار:

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خلاصه مقاله:

Nanofluids are the heat transfer fluids having remarkable thermal properties. The paper presents the experimental analysis of thermal conductivity, density, specific heat and viscosity of multiwalled carbon nanoparticles dispersed in water at various temperatures and particle concentrations. To examine the forced convection heat transfer of Multiwalled Carbon Nanotubes (MWCNT)-water nanofluid, the assessment of thermophysical properties are necessary. The two-step method was used to prepare the nanofluids with gum arabic surfactant. The thermophysical properties were measured using different volume concentrations (i.e. 0 – 0.9 vol.%) of nanoparticles and various temperatures (i.e. 30°C to 70°C). The thermal conductivity, specific heat, density and viscosity were measured with the help of KD2 Pro Thermal Property Analyser, Differential Scanning Calorimeter, KEM-DA 130N - Portable density meter, Brookfield LVDV-III ultra-programmable viscometer. The experiment found an enhancement in thermal conductivity and specific heat with rise in temperature whereas viscosity and density decreases with increase in temperature. On the other hand the thermal conductivity, viscosity and density increases with increase in MWCNT's concentration but the specific heat was found to diminish with a rise in particle concentration

کلمات کلیدی:

,Multiwalled Carbon Nanotubes,Thermophysical Properties,Nanofluids