

Heat Transfer Nanofluids Containing Metal Oxide Nanoparticles and Carbon Nanotubes

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An approximately 10 % increase in the thermal conductivity (TC) of heat transfer nanofluids containing metal oxide nanoparticles and carbon nanotubes has been determined with very low percentage loading (around 0.02 wt %) of these two nano materials. Metal oxide nanoparticles include MgO, CuO, Al₂O₃, FeO₃ etc. These fluids are very stable and the viscosity remains approximately the same as water. A possible explanation for these interesting results is the aggregation of metal oxide particles on the surface of nanotubes by electrostatic attraction and form the aggregation chain along the nanotube. Time dependant magnetic results demonstrate that, under the influence of a strong outside magnetic field, the TC value decreases.