

## Thermal and tribological properties of CNT and Fullerene nanofluids based on lubricating oil

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CNT and Fullerene nano-particles with different size and shape were dispersed into lubricant oil to improve the thermal and tribological properties of nanofluids. Agglomerated nano-particles were separated by bead-mill grinding or ultrasonication and surface modification was conducted simultaneously to improve the dispersion stability of the nanofluids. Thermal conductivity of nanofluids was measured by the transient hot-wire method, and the tribological behaviors of nanofluids were investigated with a disk-on-disk tribo tester. The experimental results indicated that all prepared nanofluids had higher thermal and tribological properties than pure oil. It has been also observed that Fullerene nano-particles were dispersed in oil more stably than CNT nano-particles and showed enhanced frictional properties. On the other hand, the nanofluids with CNT indicated more superior thermal properties than Fullerene. For all prepared CNT nanofluids, as the volume fraction increased, the thermal properties of the nanofluid enhanced as well. However, Fullerene nano-particles did not have an effect on increasing the thermal properties of nanofluid remarkably.