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RHEOLOGICAL BEHAVIOR OF WATER AND ETHYLENE GLYCOL BASED NANOFLUIDS CONTAINING OXIDE NANOPARTICLES

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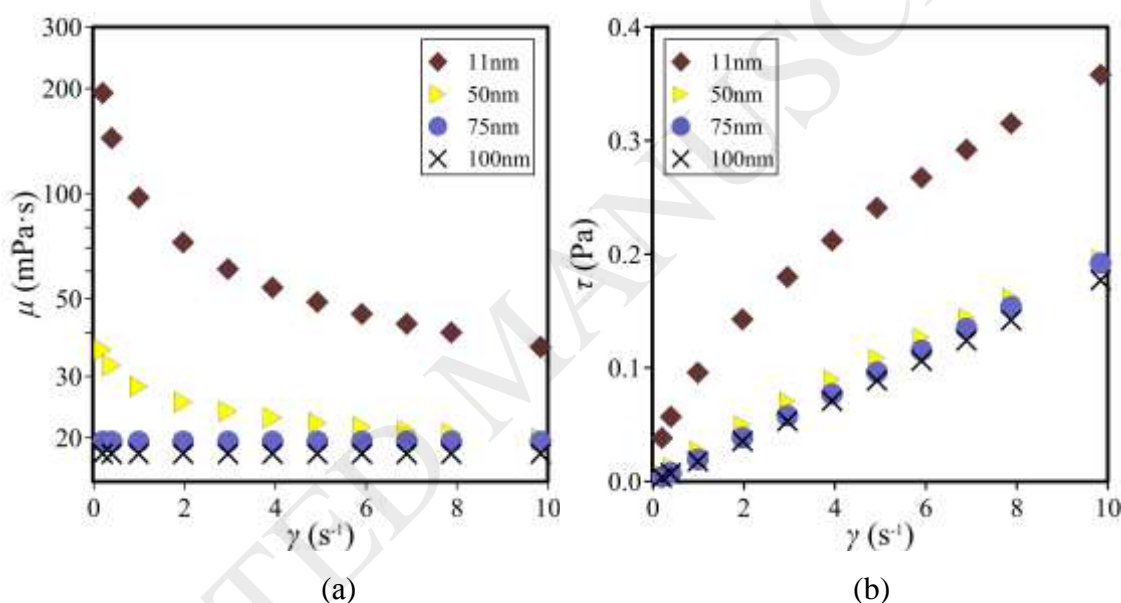
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Graphical abstract



Viscosity (a) and shear stress (b) of ethylene glycol-based nanofluid containing particles of Al₂O₃ versus shear rate.

The paper presents the results of experimental study of rheological behavior of nanofluids based from consideration of several tens of nanofluids based on water, ethylene glycol and engine oil, containing particles of different oxides and diamond. The sizes of nanoparticles ranged from 5 to 150 nm, while their volume concentration ranged from 0.25 to 8%. At that, no dispersants were used when preparing tested nanofluids. It is shown that in some cases, when increasing nanoparticle concentration, rheological behavior of nanofluids becomes non-Newtonian and is well described by power-law fluid models or Herschel–Bulkley fluids. The

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