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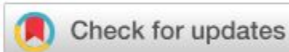
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RESEARCH ARTICLE | APRIL 12 2023

## ANN modeling for dynamic viscosity of ZnO, CuO and multioxides ZnO-CuO nano engine oil lubricant SAE40

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The present paper is based on the influence of addition of CuO, ZnO and CuO-ZnO nanoparticles on the dynamic viscosity of SAE 40 engine oil. Samples were prepared of varying percentage of nanoparticles in SAE 40 engine oil (0.02, 0.04, 0.06, 0.08 and 0.1 vol. %). The Experimental results show that both nanoparticles of CuO, ZnO and CuO-ZnO as additives in engine oil at various mixing percentage have higher dynamic viscosity property than the pure engine oil. Also dynamic viscosity of nanoparticles with different concentrations in engine oil gives an effective functionality of engine oil. The measured dynamic viscosities with all parameters affected type of nanoparticles and volume fractions were used as inputs to the artificial neural network system to modeling the dynamic viscosity.



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