

Graphene as an alternative additive in automotive cooling system

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ABSTRACT

The project represents graphene can be used as an alternative additive in the automotive cooling system. Thus, graphene nanofluids have been prepared at 0.1, 0.3 and 0.5% volume concentrations. Afterward, measurement of various thermophysical properties of nanofluid such as thermal conductivity, density, viscosity, and specific has been done. The obtaining data has been analyzed and compared with graphene oxide, titanium oxide, aluminium oxide, silicon carbide, and copper oxide nanofluid to figure out the best nanofluid that can absorb more heat to protect the car engine from overheating. In summary, the overall best nanofluid among these six would be graphene oxide, with the best thermal conductivity, specific heat capacity, and one of the lowest viscosities. As for comparison among graphene all volume concentrations, the 0.1% graphene nanofluid demonstrated the best with high thermal conductivity and low viscosity.

KEYWORDS

Automotive cooling system; Comparison; Graphene; Nanofluid; Radiator

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