عنوان مقاله:

Evaluation of Fe۳O۴ nanofluid thermal efficiency in heat exchangers: A review

محل انتشار:

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خلاصه مقاله:

The effect of Fe۳O۴ ferrofluid on heat transfer efficiency is investigated in this review paper. Different types of magnetic fluid can be hired to raise thermal efficiency in heat transfer devices specially heat exchangers of any kind. Magnetic property generates a non-uniform magnetic force in ferrofluids which is controllable in an external magnetic field and direct clusters made in this colloidal fluid. Fe۳O۴ nanoparticles change DI-water Nusselt number and intensify the thermophoresis effect base on temperature gradient and external magnetic field’s strength. Experimental results show that magnetic nanoparticle addition can improve heating fluid convective properties and this moderately changes heat transfer rate. The presence of nanoparticles significantly affects the outlet temperature difference between the inlet and outlet and leads to an increase in the heat exchanger efficiency (η). In this paper case studies have been brightly analyzed to specify the most fundamental parameters affected by Fe۳O۴ Ferrfluid use and their results confirm the fact that Fe۳O۴ Ferrfluid can optimize heat transfer in heat exchangers

کلمات کلیدی:

Convection heat transfer, Ferrofluid, Heat exchanger, Magnetic field, Nusselt number