

عنوان مقاله:

The Effect of Nano Hybrid on Thermal Efficiency of Double Tube Heat Exchangers

محل انتشار:

چهارمین کنفرانس بین المللی نوآوری های اخیر در شیمی و مهندسی شیمی (سال: 1396)

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خلاصه مقاله:

In this study overall heat transfer in a double pipe heat exchanger fitted with twisted-tape elements and hybrid nanofluid were studied experimentally. hybrid nanoparticles with a diameter of 20nm and a concentration of 1% (w/w) were prepared. The effects of temperature, mass flow rate, and concentration of nanoparticles on the overall heat transfer coefficient, heat transfer changes in the turbulent flow regime were investigated. When using twisted tape and nanofluid, heat transfer coefficient was about 40 percent higher than when they were not used. The experimental results also showed that 1% Al₂O₃/CuO nanofluid with twisted tape has slightly higher heat transfer when compared to 1% hybrid nanofluid without twisted tape. The system was used for modeling neural networks. As well as data Reynolds number and concentration as input nanoparticles overall heat transfer coefficient was chosen as a target. The correlation coefficient for all data 0.98 is the successful prediction is shown.

کلمات کلیدی:

Nusselt number, heat transfer, nanofluid

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