عنوان مقاله:

performance of Al2O3-ZnO hybrid nanofluid in heat exchangers equipped with twisted tape using Artificial neural network

محل انتشار:

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

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خلاصه مقاله:

In this work Nusselt number in a double pipe heat exchanger fitted with twisted-tape elements and Al2O3-ZnO nanofluid were studied experimentally. Al2O3-ZnO nanoparticles with a diameter of 30 nm and avolume concentration of 2% (v/v) were prepared.The effects of temperature, mass flow rate, andconcentration of nanoparticles on the Nusselt number, heat transfer changes in the turbulent flow regime,and counter current flow were investigated .When using twisted tape and nanofluid Nusselt number wasabout 30 to 40 percent higher thanwhen they were not used. It was also observed that the Nusselt numberincreases with operating temperature and mass flow rate.The experimental results also showed that 2 % v/vAl2O3-ZnO nanofluid with twisted tape has slightly higher Nusselt number when compared to 2 % Al2O3-ZnO nanofluid without twisted tape.

کلمات کلیدی:

Artificial neural network, heat transfer, nanofluid

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