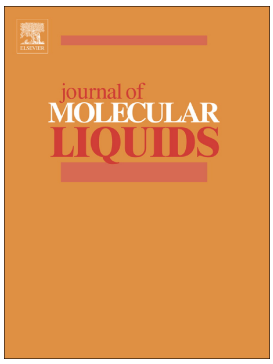

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Second law analysis for nanofluid turbulent flow inside a circular duct in presence of twisted tape turbulators

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Abstract

Finite volume method is employed to simulate water based nanofluid turbulent flow and entropy generation in a heat exchanger. In order to augment heat transfer rate, twisted tape turbulators insert inside the pipe. Second law analysis are presented for various values of height ratio (BR) and pitch ratio (PR) and Reynolds number (Re). Related formulas for entropy generation and Bejan number are provided. Results indicate that secondary flow increases with increasing number of revolution. Bejan number and total entropy generation augment with augment of pitch ratio. But they decreases with augment of Reynolds number and height ratio.

Keywords: Entropy generation; Bejan number; Nanofluid; Twisted tape turbulator; Heat transfer; Turbulent flow.

Nomenclature

D	pipe diameter	**Greek symbols**

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