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An Analysis of Mixing Process in a Static Mixer

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In the present study flow mixing process in a static mixer for two immiscible viscous fluids has been treated numerically by a control volume method in connection with volume of fluids method(VOF). A comparison of numerical results and measured data for flow-mixing process in circular duct has been made to check the results of numerical simulations. Numerical analysis was applied to calculate flow pattern, pressure drop, resident time distributions and intensity of segregation in a mixing process for Newtonian fluids. In this study mixing efficiency function has been proposed and calculated. It shows that such function which connect pressure drop and intensity of segregation can be used for industrial process optimisation to obtain most efficient conditions for the mixing process.

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