عنوان مقاله:
The Effect of Different Spacers on Mass Transfer of Membranes

محل انتشار:
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خلاصه مقاله:
The different spacers can be used to enhance mass transfer in a rectangular membrane channel. In this work, incompressible steady turbulent flow of Newtonian fluid through membrane channel with baffle and cylinder spacers has been studied. Two arrangements of different kind of filament have been simulated two and three dimensionally by the commercial finite volume package FLUENT. The results show that both high shear stress regions and eddies are present in the channel due to the cylinder and baffle spacers. The mass transfer enhancement on the membrane surface is directly related to the high shear stress value, velocity fluctuation, and eddy formation. The maximum shear stress and velocity fluctuation in different shape of filaments in the channel are compared. The simulation also shows that changing the shape of filament or filament distance will introduce larger shear stress regions near the wall region and promote the number of eddies therefore mass transfer will be increased

کلمات کلیدی:
CFD; Turbulence Model; Mass transfer; Spacer Model; Simulation