

عنوان مقاله:

CFD Simulation of Notched-Trough Liquid Distributor in Packed Columns

محل انتشار:

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خلاصه مقاله:

Liquid distributors are widely used in packed columns. In this work, first, the Zuiderweg theory which explains the quality of liquid distribution is mentioned, then, the distribution of liquid in Notched-trough liquid distributor is analyzed by CFD simulation. The results of simulation at different HETPs of packing and different distributor diameters are compared with experimental data. The results show the validity of simulation and appropriate liquid distribution. The best liquid distribution was occurred at $HETP = 0.15m$, where the coefficient of variation (Cv) and maldistribution index (MI) were 3.6021 and 1.4225, respectively. These results agree within 0.007% and 0.393% to the experimental data, respectively. In addition, the best liquid distribution was occurred at 1.5m diameter, where the coefficient of variation (Cv) and maldistribution index (MI) were 2.8782 and 1.3696, respectively. These results agree within 0.008% and 0.397% to the experimental data, respectively.

کلمات کلیدی:

Packed column, Structured packing, Liquid distribution, Computational Fluid Dynamics (CFD), Notched-trough, Maldistribution Index, Coefficient of Variation

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