Dividing wall column hydrodynamic Analysis using Computational Fluid Dynamic

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Dividing wall columns (DWCs) effectively reduce the energy requirement by up to 30%, while also lowering the engineering and hardware costs compared to those of conventional direct and indirect distillation sequences. Although many advances in the design, simulation, operation and control of DWCs are well-known, Computational Fluid Dynamics (CFD) studies and hydrodynamic analysis for such systems are few. In this paper, hydrodynamic analysis for DWC with sieve tray using CFD (ANSYS Fluent v16.2) is presented. The gas and liquid phases are modelled in the Eulerian framework as two interpenetrating phases. The interphase momentum exchange (drag) coefficient is estimated using the Bennett et al. (1983) correlation as basis. The k-epsilon RNG model was employed to solve the problem. The result was verified by HYSYS. This work was supported by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).” This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2015R1D1A3A01015621)