

Surface Renewal in the Spinning Cone Column

_____,
KAIST

(jayhlee@kaist.ac.kr*)

Due to the higher heat and mass transfer rate, rotating apparatus is utilized as a way of process intensification. Spinning cone column can be seen as an instrument maximizing mass transfer rate using rotating cone. It has been practically used in desorption processes, such as dealcoholization of wine. However, despite of its superior efficiency, theoretical background that can explain enhanced mass transfer rate is not well established. The mass transfer is mostly described based on the film theory with some empirical correlations. Regardless of the accuracy of developed mass transfer model, surface renewal must be considered in spinning cone column because the rotation of the cone induces destruction of stagnant fluid which is basic assumption for film theory. Therefore, newly developed model reflecting surface renewal effect is proposed in this presentation. Through the comparison of simulation result with experimental data, proposed model is evaluated.