

Simulation of Polymerization in Multi-Zone Circulating Reactor using Aspen Plus

염승중, 양대륙*
고려대학교
(dryang@korea.ac.kr*)

Multi-zone circulating reactor (MZCR) is comprised of two reacting zones and these are connected making a ring shape. This configuration enables easy control of chain length of produced polymers. The MZCR exhibits excellent performance in manufacturing polymers of both narrow and broad polydispersity. The polymerization process in MZCR is simulated by using Aspen Plus simulator. The influence of several variables such as monomer gas feed flow rate, amount of catalyst, reactor size, reactor temperature, circulating ratio and etc. on product quality has been investigated. Produced quantity, number-average molecular weight (MWN), weight-average molecular weight (MWW) and polydispersity index (PDI) of product polymer are considered as product quality. Simulation of polymerization in MZCR with simple Aspen Plus flowsheet can help finding new application of MZCR for polymerization of different polymers or other areas like crystallization.