

Fundamental Modeling, Estimation and Validation of Polymer Washing Process in Batch system

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After condensation polymerization reaction, condensation polymers are isolated through solidifying with a solvent. At this time a few amounts of impurities such as catalyst or by-product remain trapped on the inside of the polymers. So we necessarily remove the remaining impurities through the washing process to improve the purity of the polymers after the reaction. A systematic washing process after condensation polymerization reaction hasn't been developed yet. But optimization of time, energy, resources through the systematic washing process is essential to produce quantities of condensation polymers at plant scale. In this research we analyze the fundamental mechanism of polymer washing process, proceed the modeling of the washing process using the diffusion interface concept, estimate parameters using experimental data of sulfonated poly aryl ether ketone sample, numerically simulate the process and validate the model. This research was supported by 'Basic research and optimization of polymer washing process after condensation reaction', funded by the LG CHEM.