Study of Controlling Factors for Deracemization of Sodium Chlorate Crystal

Zhang Bowen, 김우식[1,†]
경희대학교; [1]경희대학교 화학공학
(wskim@khu.ac.kr[†])

Due to the distinctly different pharmacological and biological effect of chiral compounds, study of deracemization have been attempted by many researches. However, the mechanism of the deracemization is not clearly unveiled yet. In the present study, we attempt mechanismic investigation of influential parameters on deracemization using sodium chlorate. The mixing tank (MT) crystallizer was filled with 300 mL saturated solution at 20 oC and then 18g mixture of D- and L-seed crystals were added into the crystallizer. The suspension was agitated at a fixed speed of 700rpm. The influences of crystal size and size difference of D- and L-seeds have been investigated. Complete deracemization was achieved when seed crystals were smaller than certain size. The final CEE decreased as increasing seed crystal size. In addition, the deracenmization was enhanced as increasing the crystal size difference of D- and L-seed. According to those experiments, it might be inferred that small crystals below a certain size was dissolved out for deracemization in the quasi-equilibrium.