

## Chiral Symmetry Breaking and Deracemization Of Sodium Chlorate Using Couette-Taylor Crystallizer

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Many researches have been focusing on study chiral symmetry breaking and deracemization due to the different pharmacological effect of chiral enantiomers. In previous study, chiral symmetry breaking and deracemization in mixing tank (MT) crystallizer with turbulent flow were investigated. The results demonstrated significant effect of random turbulent eddy flow on the secondary nucleation of sodium chlorate, resulting in the initial chiral symmetry breaking. The initial chiral symmetry breaking was enhanced as increasing the agitation speed or decreasing the cooling rate, due to the promotion of the secondary nucleation during the induction period. In the present study, the chiral symmetry breaking and deracemization was studied using Couette-Taylor Crystallizer (CT). From the results, both initial chiral symmetry breaking and deracemization in CT crystallizer were much more promoted than that in MT crystallizer, as the periodic fluid motion of Taylor vortex flow was highly effective on the induction of nucleation and phase transformation. Also, the initial chiral symmetry breaking in CT crystallizer was enhanced when increasing the agitation speed or decreasing the cooling rate.