

Agglomeration of Sodium Chlorate in Turbulent Flow

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Sodium chlorate is a model material for studying chiral symmetry breaking and deracemization, as it being optically inactive in a solution and forming optically active L-form and D-form crystals via crystallization. According to our previous study, deracemization of sodium chlorate was confirmed that influenced by agglomeration of chiral crystals. In the present study, the crystal agglomeration of sodium chlorate in turbulent flow was systematically investigated using enantiomeric pure seed crystal. The agglomeration of crystals was promoted as the seed crystal size was reduced. Thus, the agglomerate size increased rapidly and reached to 160 μ m when using 13 mm of seed crystals. However, at large seed crystal size of 122 μ m, the agglomerate size was little changed, because it was hard for large crystals to be agglomerated. The agglomeration of crystal also depended on agitation and seed concentration. As increasing agitation, the agglomeration was hindered, resulting in decrease of agglomerate size. However, agglomeration was enhanced as increasing the amount of seed crystals in the suspension, bringing about the large agglomerates.