

Growth of Crystals in Adiabatic Crystallizers Depending on the Characteristics of the Raw Material

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Abstract

The adiabatic crystallizers by thermo-compression are of great importance for the crystallization of glauber salt, since by the rapid loss of solvent (adiabatic evaporation) in the solution, the cooling is achieved and therefore the supersaturation. The primary nucleation occurs by the effect of supersaturation, that is to say the condensation of a supersaturated vapor of the liquid phase is only possible after the appearance of microscopic droplets called nuclei of condensation. Heterogeneous nucleation models are based on a simple dynamic density functional theory (the phase-field crystal model) for homogeneous and heterogeneous nucleation. The purpose (mathematical and empirical model) of the project is to establish the process conditions to obtain a specific crystalline structure. The experimental results agree with the characteristics of the proposed models, these models can be used for a regional solution with a certain degree of confidence.

References

1. J. W. MULLIN. Crystallization. Four edition 2001 pag 181-284.