

FLASH CRYSTALLIZATION – A NEW PROCESS FOR DESIGNING CRYSTALLINE POWDERS

Prof. Dr.-Ing. Matthias Kind, Dr.-Ing. Rafael Kaiser
Institut für Thermische Verfahrenstechnik, University of Karlsruhe (TH), Karlsruhe/Germany;

In contrast to common crystallization processes, with the „flash crystallization process“ particle formation from particle formulation are separated into two different process steps. Particle formation (nucleation and growth) takes place in a so called “flash crystallizer”. Thereafter the particles are separated from the mother liquor and are then formulated to their desired size and morphology in a suitable agglomerator. The aim of this new process is to provide a flexible method for producing crystalline products in a new range of product qualities.

Experiments were carried out in a 5 litre mini plant flash crystallizer to check the feasibility (particle size distribution as a function of process parameters and purity) of the new crystallization step for several model substances. Solid liquid separation and agglomeration were checked with standard apparatus. To demonstrate the continuous process of a flash crystallizer a 500 litre pilot plant was successfully operated.