

WORKGROUP FOR MULTIPHASE FLOWS

Development of agglomerate structures

Grant number

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Project title

Development of agglomerate structures

Project leader

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Realized by

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Keywords

Spray drying, structure of agglomerates, CFD, prediction of product properties

Short description of the project

In spray drying processes the agglomerate properties influence the products practical value and marketing potential. Calculating main product properties, like particle size distribution, moistness, and agglomerate structure, as well as properties derived from those, like solubility, dispersibility, and several bulk properties, upfront is of great importance for cost effectively starting up and operating powder plants.

The projects main goal is to develop a model to predict the properties of agglomerates produced in spray drying. In doing so a recently developed Euler/Lagrange based method for agglomerate is going to get extended for modeling agglomerate structure, consisting of several primary particles. These extensions concern the integration of position vectors and penetration depth of primary particles. These structure models are to be integrate into the Euler/Lagrange method. In an existing testing plant, that has to be adapted for this project, extensive experimental studies will be conducted to verify the model. These experiments include mainly the targeted production of agglomerates and studying their structure and properties.

Final report of the research



project

