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TRANSPORT PHENOMENA & FLUID MECHANICS

对用CFD技术对工业结晶过程进行模拟和研究

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摘要 Some empirical mixing models were used to describe the imperfect mixing in precipitation process.However, the models can not, in general, reflect the details of interactions between mixing and crystallization in a vessel. In this study, CFD (computational fluid dynamics) technique were developed by simulating the precipitation of barium sulphate in stirred tanks by integration of population balance equations with a CFD solver. Two typical impellers, Rushton and pitched blade turbines, were employed for agitation. The influence of feed concentration and position on crystal product properties was investigated by CFD simulation. The scale-up of these precipitators was systematically studied. Significant effect on the crystal properties was found for the scale-up under some conditions.Keywords simulation, scale up, precipitation, CFD(computational fluid dynamics)

关键词 模拟技术; 放大; 沉淀; CFD; 计算流体力学; 计算方法;

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Simulation and Scale-up of Barium Sulphate Precipitation Process Using CFD Modeling

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