

## عنوان مقاله:

CFD Simulation of Bubble Column Reactor Hydrodynamics

## محل انتشار:

نهمین کنگره ملی مهندسی شیمی ایران (سال: 1383)

تعداد صفحات اصل مقاله: 9

## نویسندگان:

Rahimi - *Department of Chemical Engineering, Sistan and Baluchestan University*

Zivdar - *Department of Chemical Engineering, Sistan and Baluchestan University*

Salehi - *Department of Chemical Engineering, Sistan and Baluchestan University*

Nandakumar - *Department of Chemical and Material Engineering, University of Alberta, Edmonton*

## خلاصه مقاله:

A bubble column reactor is a multiphase flow reactor in which reactant gas is bubbled through a liquid solution. Bubble column reactors may be operated in a batch or continuous mode. They are known as excellent reactors for processes, which require large interfacial area for gas-liquid mass transfer and efficient mixing for reacting species for example in bubble column fermentors. A better knowledge of the local hydrodynamics to increases the predictability of the reactor design and to improve the efficiency of the processes appears currently necessary. The use of numerical modeling i.e. computational fluid dynamics (CFD) should be able to improve this knowledge by providing a complete description of the local hydrodynamics if an adequate model is used. In this research, hydrodynamic behavior of bubble column reactor was determined. In previous works, the prediction of gas holdup is not accurately covered. For that reason, the turbulency in liquid phase is modeled by standard k- $\epsilon$  model. In addition, local axial velocity, velocity distribution and local gas hold-up were calculated by fluent 6.0.3, which is commercial software. The results have been compared with experimental data, which shows a quite good agreement

## کلمات کلیدی:

Computational fluid dynamics, Bubble column reactor, Hydrodynamic

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/29896>

