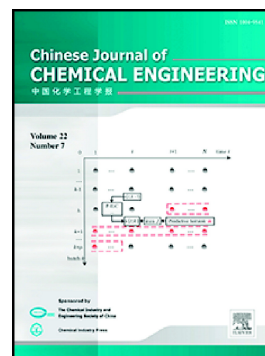


Accepted Manuscript

Synergistic and interference effects in coaxial mixers: Numerical analysis of the power consumption

Juan Huang, Gance Dai



PII: S1004-9541(17)30373-7
DOI: doi:[10.1016/j.cjche.2017.10.021](https://doi.org/10.1016/j.cjche.2017.10.021)
Reference: CJCHE 972

To appear in:

Received date: 5 May 2017
Revised date: 26 September 2017
Accepted date: 1 October 2017

Please cite this article as: Juan Huang, Gance Dai , Synergistic and interference effects in coaxial mixers: Numerical analysis of the power consumption. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Cjche(2017), doi:[10.1016/j.cjche.2017.10.021](https://doi.org/10.1016/j.cjche.2017.10.021)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Fluid Dynamics and Transport Phenomena

Synergistic and interference effects in coaxial mixers: numerical analysis
of the power consumption[☆]

Juan Huang^{1*}, Gance Dai²

¹School of Perfume and Aroma Technology, Shanghai Institute of Technology, Shanghai 201418,
China

²State Key Laboratory of Chemical Engineering, East China University of Science and
Technology, Shanghai 200237, China

*Corresponding author, Email: huangj@sit.edu.cn

[☆]Supported by the Shanghai Institute of Technology (10120K146098) and Shanghai Municipal
Education Commission (1021ZK151009017).

Abstract: This paper is concerned with the design and application of coaxial mixers with the aid of analysis of interaction between each individual impeller. Two types of coaxial mixers pitched blade turbine (PBT)-helical ribbon (HR) and inner-outer HR operated in laminar regime were studied experimentally and numerically. The interaction implies synergistic and interference effects, which was revealed through the investigation of axial circulation rate, energy dissipation rate and power consumption. The influence factors including rotational speed ratio, rotating mode and impeller configuration were explored systematically. Quantitative analysis of power consumption involves three parameters: rate of variation in power consumption, interactive mode and ratio of power consumption. Analysis indicated that some

Download English Version:

<https://daneshyari.com/en/article/6592972>

Download Persian Version:

<https://daneshyari.com/article/6592972>

[Daneshyari.com](https://daneshyari.com)