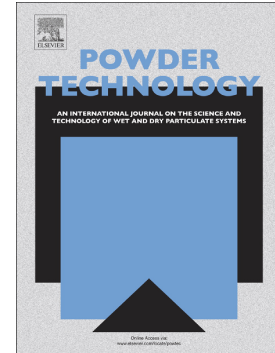


## Accepted Manuscript

Numerical calculation of wall-to-bed heat transfer coefficients in Geldart B bubbling fluidized beds with immersed horizontal tubes

Peter Ostermeier, Fabian Dawo, Annelies Vandersickel, Stephan Gleis, Hartmut Spliethoff



PII: S0032-5910(18)30300-0  
DOI: doi:[10.1016/j.powtec.2018.04.028](https://doi.org/10.1016/j.powtec.2018.04.028)  
Reference: PTEC 13329  
To appear in: *Powder Technology*  
Received date: 21 September 2017  
Revised date: 17 January 2018  
Accepted date: 14 April 2018

Please cite this article as: Peter Ostermeier, Fabian Dawo, Annelies Vandersickel, Stephan Gleis, Hartmut Spliethoff, Numerical calculation of wall-to-bed heat transfer coefficients in Geldart B bubbling fluidized beds with immersed horizontal tubes. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Ptec(2017), doi:[10.1016/j.powtec.2018.04.028](https://doi.org/10.1016/j.powtec.2018.04.028)

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.

# Numerical calculation of wall-to-bed heat transfer coefficients in Geldart B bubbling fluidized beds with immersed horizontal tubes

Peter Ostermeier<sup>a</sup>, Fabian Dawo<sup>a</sup>, Annelies Vandersickel<sup>a</sup>, Stephan Gleis<sup>a</sup>, Hartmut Spliethoff<sup>a,b</sup>

<sup>a</sup>Lehrstuhl für Energiesysteme, Technische Universität München, Boltzmannstr. 15, 85748 Garching, Germany

<sup>b</sup>ZAE Bayern, Walther-Meissner-Str. 6, 85748 Garching, Germany

Corresponding author:

Peter Ostermeier

Tel. +49 89 289 16280

Fax +49 89 289 16271

[peter.ostermeier@tum.de](mailto:peter.ostermeier@tum.de)

## 1. Introduction

Solid-gas fluidized bed reactors have many advantages compared to other solid-gas contacting techniques: superior mixing properties and hence virtually isothermal conditions, high heat and mass transfer rates between gas and particles, high heat transfer rates between the fluidized bed and immersed objects and their suitability for large-scale applications. Due to the smooth liquidlike flow of particles, continuous automatically controlled operation can be achieved. They are employed in numerous industrial applications, such as gasification, combustion, synthesis reactions, cracking and various other chemical and metallurgical processes [1,2]. Although they are applied in many industrial operations, the flow dynamics in fluidized beds are not understood comprehensively because it is difficult or sometimes even impossible to obtain sufficient experimental data to quantify intrinsic phenomena. For design, performance optimization and scale up of fluidized bed systems, a proper understanding of the complex flow hydrodynamics is important. Especially the

Download English Version:

<https://daneshyari.com/en/article/6674669>

Download Persian Version:

<https://daneshyari.com/article/6674669>

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