Accepted Manuscript

A new set of correlations of drag, lift and torque coefficients for non-spherical particles and large Reynolds numbers

Rafik Ouchene, Mohammed Khalij, Boris Arcen, Anne Tanière

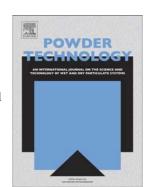
PII: S0032-5910(16)30459-4

DOI: doi: 10.1016/j.powtec.2016.07.067

Reference: PTEC 11829

To appear in: Powder Technology

Received date: 5 February 2016 Revised date: 23 June 2016 Accepted date: 29 July 2016



Please cite this article as: Rafik Ouchene, Mohammed Khalij, Boris Arcen, Anne Tanière, A new set of correlations of drag, lift and torque coefficients for non-spherical particles and large Reynolds numbers, *Powder Technology* (2016), doi: 10.1016/j.powtec.2016.07.067

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.

A new set of correlations of drag, lift and torque coefficients for non-spherical particles and large Reynolds numbers

Rafik Ouchene^a, Mohammed Khalij^a, Boris Arcen^b, Anne Tanière^{a*}

^a CNRS, LEMTA, UMR 7563, Université de Lorraine – ESSTIN, 2 rue Jean Lamour, 54500

Vandoeuvre-les-Nancy, France.

^b CNRS, LRGP, UMR 7274, Université de Lorraine, Nancy, F-54000, France.

*Corresponding author: anne.taniere@univ-lorraine.fr

Abstract

In this paper, we derive and validate new correlations for the drag, lift and pitching torque coefficients for non-spherical particles and a large range of Reynolds numbers

 Re_p and aspect ratios $w \in [1-32]$. The functional forms of these correlations, depending

on Re_p , w and incidence angle, α are determined by fitting the results extracted from

DNS computations of the flow around prolate ellipsoidal particles. This work follows

that of Ouchene et al. [1] in which the numerical method was implemented and

validated. A complete set of correlations for prolate ellipsoidal particles outside Stokes

regime is provided.

1

Download English Version:

https://daneshyari.com/en/article/4910875

Download Persian Version:

https://daneshyari.com/article/4910875

<u>Daneshyari.com</u>