

## Accepted Manuscript

Correlations between flow rate parameters and the shape of the grains in a silo discharge

César A. Calderón, Marcela C. Villagrán Olivares, Rodolfo O. Uñac, Ana M. Vidales

PII: S0032-5910(17)30541-7  
DOI: doi:[10.1016/j.powtec.2017.07.004](https://doi.org/10.1016/j.powtec.2017.07.004)  
Reference: PTEC 12646

To appear in: *Powder Technology*

Received date: 16 February 2017  
Revised date: 28 June 2017  
Accepted date: 3 July 2017



Please cite this article as: César A. Calderón, Marcela C. Villagrán Olivares, Rodolfo O. Uñac, Ana M. Vidales, Correlations between flow rate parameters and the shape of the grains in a silo discharge, *Powder Technology* (2017), doi:[10.1016/j.powtec.2017.07.004](https://doi.org/10.1016/j.powtec.2017.07.004)

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.

## Correlations between flow rate parameters and the shape of the grains in a silo discharge

César A. Calderón<sup>1</sup>, Marcela C. Villagrán Olivares<sup>2</sup>, Rodolfo O. Uñac<sup>2</sup>, Ana M. Vidales<sup>2\*</sup>

<sup>1</sup>Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, Ejército de los Andes 950, D5700HHW, San Luis, Argentina

<sup>2</sup>INFAP, CONICET, Departamento de Física, Facultad de Ciencias Físico Matemáticas y Naturales, Universidad Nacional de San Luis, Ejército de los Andes 950, D5700HHW, San Luis, Argentina

\* corresponding author, avidales@unsl.edu.ar

### Abstract

This is an experimental study of the discharge of seeds in a silo in a mass flow regime. It demonstrates how the flow parameters involved in Beverloo's equation ( $C$  and  $k$ ) can be correlated with some of the shape parameters belonging to the seed grains. Results show that the concept of empty annulus introduced through the parameter  $k$  is dependent on the size and on the specific surface area. Besides, the circularity of the grains, alone, is not enough to predict the value of  $k$  in a grain discharging process.

*Keywords:* flow; silo; Beverloo's equation.

Download English Version:

<https://daneshyari.com/en/article/4910376>

Download Persian Version:

<https://daneshyari.com/article/4910376>

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