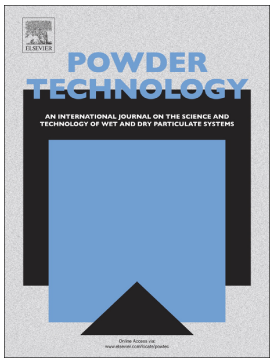

Evaluation of RRSB distribution and lognormal distribution for describing the particle size distribution of graded cementitious materials

Peng Gao, Tong Sheng Zhang, Jiang Xiong Wei, Qi Jun Yu

PII: S0032-5910(18)30100-1
DOI: https://doi.org/10.1016/j.powtec.2018.01.079
Reference: PTEC 13165

To appear in: *Powder Technology*

Received date: 23 October 2017
Revised date: 29 December 2017
Accepted date: 27 January 2018

Please cite this article as: Peng Gao, Tong Sheng Zhang, Jiang Xiong Wei, Qi Jun Yu , Evaluation of RRSB distribution and lognormal distribution for describing the particle size distribution of graded cementitious materials. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Ptec(2017), https://doi.org/10.1016/j.powtec.2018.01.079

Evaluation of RRSB distribution and lognormal distribution for describing the particle size distribution of graded cementitious materials

Peng Gao[a,b], Tong Sheng Zhang[a,c], Jiang Xiong Wei[a,c*], Qi Jun Yu[a,c]

[a] *School of Materials Science and Engineering, South China University of Technology, 510640, Guangzhou, People's Republic of China*

[b] *Microlab, Faculty of Civil Engineering and Geosciences, Delft University of Technology, 2628 CN Delft, The Netherlands*

[c] *Guangdong Low Carbon Technologies Engineering Center for Building Materials, 510640, Guangzhou, People's Republic of China*

Abstract: Graded blended cement made of graded Portland cement (PC), blast furnace slag (BFS) and fly ash (FA) is attractive for cement production. For manufacturing graded blended cement, a suitable mathematical expression should be introduced to describe the particle size distribution (PSD) of its components and control the quality of graded blended cement. This study aims to evaluate Rosin-Rammler-Sperling-Bennet (RRSB) distribution and lognormal distribution for describing the PSD of the components of graded blended cement. RRSB distribution and lognormal distribution are used to fit the PSD of ungraded and graded PC, BFS and FA. It is found that lognormal distribution exhibits smaller fitting errors for describing the PSDs of graded PC, BFS, FA and ungraded FA. What is more, lognormal distribution exhibits good simplicity and popularity. Hence, it is recommended to use lognormal distribution to control the PSD of graded blended cement in manufacturing process.

* Corresponding author. Tel./Fax.: +86 20 8711 4137. Email address: jxwei@scut.edu.cn (Jiangxiong Wei).