

DEM-CFD Simulations for Various Fluidizations

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ABSTRACT

Geldart has classified the powders characteristics into 4 groups according to the particles sizes and density. This is generally known as Geldart's powder classification chart. In the classification chart, there are fluidization behaviors that still cannot be clarified yet such as the homogeneous and also bubbling fluidizations. In the bubbling fluidization, bubble behavior is also varies, i.e. fast and slow bubble. Numbers of study have been conducted in order to clarify the constitutive mechanism of fluidization behind the differences between the homogeneous and bubbling fluidizations. However, the basic fundamental mechanisms have not been sufficiently clarified yet. In this study, we adopted DEM-CFD coupling model to utilize the analysis of the fluidization in fast and slow bubbling, homogeneous and liquid fluidization.

KEYWORDS: fluidized bed, numerical analysis, DEM-CFD, fast and slow bubbles, homogeneous