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Hydrodynamics and CFD Modeling of Food Materials using Circulating Fluidized Bed

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Abstract : Hydrodynamics plays an important role in defining the performance of circulating fluidized bed as a reactor. Hence, the present work, focus to study the hydrodynamic characteristics of food materials such as Poppy Seeds, Mustard, Semolina and Millet in circulating fluidized bed. The effects of axial variation of pressure with gas flow rate and solid circulation rate have been analyzed. Computational fluid dynamics simulations were performed using commercial computational fluid dynamics package. Simulations were done for the axial and radial variations of pressure drop with gas flow rate and packing height for poppy seeds. The experimental and simulations results were compared and found to be satisfactory.
Keywords : Circulating fluidized bed, Food Materials, Hydrodynamics, CFD modeling.

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