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Lateral solids meso–mixing in pseudo–2D fluidized beds by means of TFM simulations

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Abstract

This work studies the solids mixing process in fluidized beds by means of numerical simulations using the two–fluid model (TFM) available in the MFIX code. The numerical results are compared with experiments conducted in a pseudo–2D fluidized bed. The experiments were performed by placing particles of the same diameter and density but of different colour in two vertical layers. To reproduce numerically the experimental results, three phases are defined: one for the gas phase and two for the solid phases, corresponding to the particles of different colours employed in the experiments, to make them separately traceable. To improve the simulation prediction, a friction model that accounts for the effect of the front and rear walls on the continuum solid phases was introduced in the TFM. Mixing times of the

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