# Size segregation in gas-solid fluidized beds with continuous particle size distributions

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## Abstract

Discrete-particle simulations of a gas-solid fluidized bed are used to investigate the species segregation (de-mixing) behavior of systems with continuous particle size distributions. Both Gaussian and lognormal distributions are investigated over a range of distribution widths, restitution and friction coefficients, and gas velocities. The results indicate that: (i) the average particle diameter decreases as the height within the bed increases, (ii) the level of segregation increases with an increase in the width of the particle size distribution, and (iii) segregation is attenuated as bubbling becomes more vigorous. Furthermore, the shape of the local size distribution (i.e., Gaussian or lognormal) is found to mimic that of the overall size distribution in most regions of the fluidized bed. 

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