The Effect of Dynamics on the Homogenization via Discrete Element Method (DEM).

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The effect of dynamics on the homogenization via Discrete Element Method (DEM)

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Granular materials are usually assemblies of complex bodies varying in size, shape and surface properties. Many industries need to handle these materials in order to ensure the uniformity of the material properties. Most used unit of operation is usually the mixing of the material. It can be quite difficult since it's based on many parameters. The simulation of mixing process of approximately 42 thousand glass spherical particles was conducted in a vertical cylindrical mixer with two opposed flat blades of 45° rake angle by using Discrete Element Method (DEM). The key characteristic parameter is the homogenization. The granular materials acquire two different types of motion during mixing. It is the primary and secondary flows. The effect of these flows on the homogenization was evaluated. Within granular mixing, the most important task is to determine the level of homogeneity, which was evaluated by the mixing indices. New global characteristic was proposed.

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