

Abstract Submitted
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Formation and properties of a dynamic suspension TESS HOMAN, VALÉRIE VIDAL, SYLVAIN JOUBAUD, Laboratoire de Physique, Ecole Normale Supérieure de Lyon — We experimentally study the behaviour of an immersed granular bed in a Hele-Shaw cell when perturbed by an airflow from a single inlet at the bottom. When the particles are slightly heavier than the liquid, the competition between particles being dragged up into the liquid and particles settling due to gravity results in a dynamic suspension. In the stationary regime, part of the initial granular bed never moves, and forms a so-called “dead zone.” We investigate its shape and extent as a function of the parameters (air flow-rate, initial grains and liquid height). We also focus on the formation and properties of the dynamic suspension by optically recording the full particle density field in the Hele-Shaw cell. The mean density and density fluctuations of the dynamic suspension are studied as a function of the gas flow-rate and the ratio between the amount of grains and liquid.

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