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Accretion Dynamics on Wet Granular Materials GUILLAUME SAINGIER, ALBAN SAURET, PIERRE JOP, Surface du Verre et Interfaces, UMR 125 CNRS/Saint-Gobain, HETEROGENEOUS REACTIVE MATERIALS TEAM
— Blending liquid with dry grains constitutes the initial step of industrial processes such as granulation. As the first grains become wet, they aggregate. More dry grains can then stick to the aggregates, eventually producing a uniformly wet granular material. The mechanism responsible of the capture of dry grains and the growth of the aggregates involve interfacial effects and granular dynamics. To describe the interplay between the grains and the liquid, we carry out a model experiment, in which the pressure of the liquid in the wet saturated aggregate is controlled. We highlight the existence of two different growth regimes, whose dynamics are limited by fluid present at the surface of the aggregate and the number of particles impacting. The transition between the two regimes is governed by the liquid availability at the interface, as it appears to directly control the probability of grain capture.

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