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Liquid effect on the vibration of granular media in cylindrical cavities ENRIQUE GUZMAN, ROBERTO ZENIT, Universidad Nacional Autonoma de Mexico — The study of the interactions of granular media with liquid phases is important both, from the academic applied points of view. A particularly interesting problem concerns the dispersion of the granular phase into the liquid phase. To this end, a series of experiments are being conducted in order to determine the conditions under which such dispersion takes place. The experimental apparatus consists of a short transparent cylinder (LvD) with its axis oriented in a horizontal position. The cavity is completely filled with liquid and a prescribed number of glass spheres forms a deposit layer at the bottom. The cylinder, which is initially at rest, is set into a vertical vibrating state of motion by means of an external actuator. While the amplitude of the excitation remains fixed, its frequency is swept (continously) from 5Hz to 15Hz. Synchronized high speed imaging is then used to identify the frequency at which the stratified-to-dispersed transition occurs. Preliminary results clearly indicate the essential role played by the properties of the liquid (i.e. density, viscosity and superficial tension) and of the spheres (i.e. size and number) during the process. The objective of the study is to determine the conditions required to produce appropriate dispersions for different combinations of liquids and spheres.

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