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Flow of Air Bubbles in a Packed Bed SOTO ENRIQUE, ZENIT ROBERTO, Universidad Nacional Autonoma de Mexico, AGUILAR-CORONA ALICIA, Universidad Michoacana de San Nicolas de Hidalgo — The flow of bubbles through a granular media is presented. An index matching technique was used to visualize the permeation of bubble inside the packed bed formed by spheres with diameters from 0.5 mm to 6 mm and specific densities of 1.05 and 2.45. The volume of the bubble is determined by the flow rate and four distinctive modes were found. The first is for small bubbles that percolate without any deformation. The second is for larger bubbles that are deformed but still passed through the bed without break up. For the particles with higher density the third mode is observed and consists in the formation of air paths inside the bed. In the last mode, the air is cumulated till the bubble reaches a critical volume. Above the critical volume the granular media is fluidized and the bubble flows freely inside it. During this process some particles are dragged to the liquid bulk. The pore size and the capillary length were measured. Furthermore, the comparison of the bubbles velocity and shape inside the bed and in the liquid bulk are presented. These results agree with others authors who studied the emergence of bubbles from an immersed granular bed.

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