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Impact induced splash and spill in a quasi-confided granular medium S. B. OGALE, S. R. SHINDE, P. A. KARVE[1], ABHIJIT S. OGALE, APARNA KULKARNI, ADITI ATHAWALE, ANAGHA PHADKE, RAJASHRI THAKURDAS, S. N. KALE[2], Sanshodhan Foundation, 128/1B, plot 3A, Sharmik Sahakari Society, Kothrud, Pune 411 038, India — Dissipation of the energy of impact in a granular medium and its effects has been a subject of considerable scientific for quite some time. In this work we have explored and analyzed the splash and spill effects caused by the impact of a ball dropped from a height into a granular medium in a open container. Three different granular media, namely rice, mustard seeds, and cream of wheat were used. The amount of spilled-over granular matter was measured as a function of the ball-drop height. Digital pictures of the splash process were also recorded. The quantity of spilled granular matter varies linearly with the impact energy. However additional step like structures are also noted. Specifically, a distinct and large jump is seen in the spilled quantity at a specific impact energy in the case of mustard seeds, which also exhibit obvious charging effects and repulsion. Although the parameters such as mass per grain and packing density for the case of mustard seeds are intermediate between those for rice and cream of wheat, the spill quantity for comparable impact energy is considerably higher. These data will be presented and discussed.

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