

Gravity flow characterization of fine granular material for Block Caving

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© 2018 Elsevier Ltd Block and Panel Caving are based on the action of gravity for ore breakage and transport, so that material reaches the drawpoint through gravity flow. The study of caved rock flow is of vital importance for defining the design, planning, ore recovery and consequently the profitability of a mining project. This study experimentally investigates the influence of moisture content and fine material on the draw-zone and hang-up frequency. Laboratory experiments were carried out on a physical model (scale 1:75) using a Load Haul Dump system (LHD). The results show that the dimensions, the diameter, and the height of the draw-zone depend on three variables: moisture content, particle size, and accumulated extraction mass. For the case of tests with moisture, the increase in diameter reaches a maximum value and becomes almost constant. The ratio of the flow zone width was found to be in the range of 2.7-3 times the drawpoint width, which is within the range of current block