Computer simulation of granular material: vibrating feeders

G. Rein Soto-Yarritu; A. Andrés Martínez

Abstract-

This paper presents a numerical model for simulation of granular material movement. The proposed computer model is based on Discontinuous Deformation Analysis, a numerical method recentlyadapted for simulation of particles motion. Gravity, impacts between particles, impacts with the boundaries, friction and cohesion are considered. The motion of particles is induced by the vibration of the deck on which they rest and boundary conditions are set to model a vibrating feeder for granular material transport. The model is compared to a simple analytical model used by industries, showing that qualitative results agree. Numerical results were applied to optimize the design of a gravity table separator machine for compost of which already a first prototype has been constructed.

Index Terms- Granular Material, Discontinuous, Deformation Analysis, Numerical Simulation, Vibrating Feeder, Gravity, Table Separator.

Citation:
Rein, G.; Andrés, A. "Computer simulation of granular material: vibrating feeders", Computer simulation of granular material: vibrating feeders, vol.13, no.2, pp.181-185, April, 2001.