

Abstract

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Title of Thesis: Study of flow and consolidation behaviour of lactose

This diploma thesis studies flow and consolidation behaviour of three types of lactose, which differed in the method of manufacture (crystallization, milling, spray drying). Particle size distribution was characterized by the sieve analysis. The bulk and tapped density, the angle of repose, the flow rate through an orifice of the hopper and true density measured by helium pycnometer were evaluated. The volume changes of powder bed and porosity during consolidation in the relationship on gravitational tapping were studied. To describe the consolidation process, the exponential mathematical model was used, which made possible to calculate $N_{1/2}$, that shows the number of taps needed to reach one half of the powder volume reduction. The values noted for lactose were in the range of 3-5.8.