1 Abstract

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Title of Thesis: Study of the influence of particle size on the flow and consolidation behaviour of Tablettose 80

The objective of this diploma thesis was to evaluate the flow and consolidation behaviour of the size fractions of lactose for direct compression - Tablettose® 80 in a range of 80-400 μm obtained by sieving. The nonlinear influence of the particle size on the flow rate was detected; the fractions of Tablettose® 80 with the mean size of 245 and 346 μm showed the best flowability. The influence of the diameter of the hopper opening on the flow rate was modeled using the Beverloo and/or Jones & Pilpel flow equation; the latter described the results better. The assessment of volume changes by gravitational tapping allowed to observe dynamics of consolidation and to express porosity factor for the powder bed, which enabled an estimation of the angle of internal friction.